



COUNTRY REPORT ON THE ENERGY EFFICIENCY SERVICES MARKET AND QUALITY

Czech Republic



QualitEE Project

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The QualitEE consortium comprises 12 partner organisations covering 18 European countries, an expert advisory board, including the European standards body CEN/CENELEC, and 59 supporters from major financial institutions, government bodies, trade associations and certification bodies.

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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*	means increase in energy efficiency as a result of technological, behavioural and/or economic changes
energy efficiency*	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 efficiency improvement*	means an increase in energy efficiency as a result of technological, behavioural and/or economic changes
energy management system*	means a set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective
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 service 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
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

energy service project facilitator (facilitator)	means an advisory company working on behalf of the client to procure and/or implement an energy service project
Integrated Energy-Contracting (IEC)	means a combination of energy efficiency measures with energy supply contracting typically with short term 'operational verification' rather than ongoing Measurement & Verification
Savings	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
The International Performance Measurement and Verification Protocol (IPMVP)	is the widely referenced framework for "measuring" energy or water savings, which is available at www.evo-world.org

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 EXECUTIVE SUMMARY

Introduction

The objective of this report is to compile evidence to inform the development of European & national quality criteria and the implementation of quality assurance schemes for energy efficiency services (EES). This report has been developed as part of the **"QualitEE – Quality Certification Frameworks for Energy Efficiency Services" project** supported by the EU's Horizon 2020 programme. The QualitEE project aims to increase investment in EES and improve trust in service providers.

Information has been collected through a market survey as well as a literature review. An analysis has been conducted and conclusions formed to be presented in this report as well as in the online database on the QualitEE project website.

This report aims to improve the market knowledge of stakeholders so that they can make better informed decisions based on evidence. The barriers and success factors for energy efficiency services, their quality determinants as well as the related legal, political and institutional framework have been mapped. Lessons learned from existing certification frameworks will serve to establish strategies for the implementation of national quality assurance schemes.

Legal and regulatory frameworks

Chapter 3 outlines the political, legal and regulatory framework for energy efficiency service in the Czech Republic, for which the Ministry of Industry and Trade (MIT) is the key government body, which transposed Article 18 (relating to Energy Services) of the European Energy Efficiency Directive (EED) into Czech law.

The fifth update of the National Energy Efficiency Action Plan, published in 2017, proposes that EPC be promoted and employed in the tertiary sector. The methodology for the preparation and implementation of EPC projects in the public sector is to be amended, with the aim being for EPC to become one of the significant methods employed in achieving energy savings in buildings. The NEEAP covers the launch of the measures included in the alternative fulfilment scheme for the Czech Republic Article 7 of the EED and provides direct support for the use of EES or can be combined with EES (EFEKT 2 Programme; financial instruments in the area of energy efficiency and the Reasonable Energy Savings Programme).

In 2012, several documents to provide guidance on EPC project preparation and implementation were prepared by the Association of Energy Service Providers (APES) with the support of the MIT. The first version of the model contract created in 2012 was modified in 2015 in accordance with Annex XIII to the EED by an amendment to the Energy Management Act. It also reflects the new Act No. 134/2016, on procurement.

The APES acts as the national administrator for the European Code of Conduct for EPC. Czech signatories include the APES and the majority of its members. EPC providers use the Code as a promotional tool.

Energy performance contracting market

Chapter 4 outlines the state of play in relation to the market for Czech Energy Performance Contracting by means of a literature review and a strong survey dataset covering a majority of active energy service providers and facilitators operating in the market.

Historically, the success of EPC in the Czech Republic can mainly be attributed to the continuous bottom-up efforts of energy service companies. Since 2010, these efforts are concentrated within the APES, which has been very active since its foundation in supporting the expansion of the Czech EPC market by attempting to remove existing barriers and standardise EPC model documents. The APES has 26 members, including 13 EPC providers and 11 EPC consultants (out of which six are EPC facilitators).

Currently, there are 13 members of the APES offering EPC on the Czech market, of which six are very active and submit tenders for several calls annually

The EPC market in the Czech Republic is well-developed, with a high level of know-how among EPC providers and acceptance of EPC by several banks, providing substantial financing opportunities for current EPC projects.

The first EPC project in the Czech Republic was implemented as early as 1993. Between 1994 and 2017, about 240 EPC projects have been implemented with a value above CZK 300 billion and leading to total energy savings of CZK 3.3 billion (Chance for Buildings 2018). The market has been growing very slowly but steadily, with about 10 EPC projects implemented per year.

Currently, the EPC market is experiencing stagnation. According to the APES, in 2016 nine new EPC projects were commissioned with a value of CZK 259 million and another nine new EPC projects were commissioned in 2017 on 39 sites with a total value of CZK 249 million (Chance for Buildings 2018).

EPC providers and facilitators reported in the QualitEE survey (2017) that the market for EPC services is stagnating or experiencing only slight growth in the Czech Republic. Stagnation was indicated by 36% of Czech respondents, despite the APES data confirming stagnation. The slightly more optimistic perception of the market development might be due to the concrete sample of respondents who are marginally more successful.

The survey reported that typical EPC contracts in the Czech Republic are held with public sector clients. Municipalities are followed by two other key areas of the public sector: healthcare and education.

Respondents have been involved in projects with capital outlay of EUR 0.5 – 1 million and contract length of 5 – 10 years. Based on the author's experience and research, typical EPC contract lengths in the public sector are 8 – 10 years.

Guaranteed savings model financed by sale of claims dominates the Czech EPC market. The second most common method of EPC financing is supplier-arranged debt finance. Obtaining financing is perceived as easy and financing is not reported as a barrier to EPC project implementation. Emphasis on energy savings performance (measurement & verification) analysis by independent third parties was shown and is usually provided by the EPC facilitator who organised the procurement process.

"Administrative barriers in the public sector" and "Complexity of the concept / Lack of information" were reported as the top two barriers to EPC business.

When asked in which areas quality improvements are most needed in EPC project preparation and implementation, the top three areas indicated by Czech respondents were communication between provider and client, followed by preliminary analysis and user information and motivation.

Energy supply contracting market

Chapter 5 examines the current situation of the Czech Energy Supply Contracting (ESC) market. Unlike the EPC market, the scope of the ESC market is not well defined. This is exemplified by the fact that only two providers and two facilitators completed questions on energy supply contracting in the survey, even though the other survey respondents are known to offer energy supply contracts.

The ESC market was started in the Czech Republic by Harpen ČR, s.r.o., which carried out a vast amount of ESC projects during the 1990s. As a result of their success, other competitors adopted their business model. Most of these companies were established as part of predominantly foreign companies, while some emerged from small companies set up in the Czech Republic. Currently, the dominant actor on the Czech ESC market is ČEZ Energetické služby, s.r.o., which implements the largest number of ESC projects, most of which are installations of cogeneration units.

The survey reported that typical ESC contracts in the Czech Republic are held with private sector clients, have a capital outlay below EUR 500,000, a contract length of 5 – 10 years and use a guaranteed savings model.

Czech respondents identified the following top three barriers to the ESC market: subsidy and policy uncertainty, lack of government support and administrative barriers in the public sector. Quality improvement is needed most in preliminary technical-economic analysis and energy audit. While achieving savings on the supply side was of critical importance as a quality determinant, the majority of respondents did not indicate a need for quality improvement in this area.

Recommendations to support market developments

Chapter 6 proposes a set of recommended actions to overcome the barriers identified on the Czech EPC and ESC market. The recommendations are based on the main drivers of the market identified by the QualitEE survey among the market stakeholders as well as on the knowledge

of success factors which have helped to develop the market until now. Czech EES providers and facilitators identified the following main drivers of the EPC market in the QualitEE survey: pressure to reduce costs; limited budgets in public sector; energy savings guarantee; external expertise / turnkey service and financing provided by service provider. Pressure to reduce costs remains the top market driver also in the case of ESC, with even higher agreement by all respondents in the survey.

The activities listed in the text below are meant to help overcome the identified barriers to EPC and ESC market development in the Czech Republic:

- ✔ **Removal of administrative barriers, especially for organisation units of the state.**
Update and amendment of official guidance on preparation and implementation of EPC projects in the public sector to be amended.
- ✔ **Certification of EES projects and EES providers** to provide quality assurance for the clients to distinguish good quality projects and to set quality benchmarks for existing and new EES providers.
- ✔ **Seminars, conferences, roundtables for public sector** to provide information on the possibilities and benefits of the EES and EPC in particular, education on how to prepare and implement EES project, including procurement procedure.
- ✔ **Training for new EPC providers** to sustain the high quality of EPC projects.
- ✔ Use of the **European Code of Conduct for EPC** to promote the implementation of a basic set of values and principles that are considered fundamental for the successful, professional and transparent implementation of EPC
- ✔ **Promotion of best practices in EPC and ESC.**
- ✔ **Discussions, workshops, conferences and networking** with policymakers to promote EPC as one of the governmental strategic goals in energy policy with practical impacts on the removal of administrative barriers.
- ✔ **Subsidies and grants** – continue in support of soft measures (information, education, studies) and allowing for combination of EES with investment subsidies.

Certification of energy efficiency services

Chapter 7 provides further details on the development of quality assurance schemes for energy efficiency services, which is a focus of the QualitEE project.

In the area of product certification, the **accreditation body** accredits certification bodies who **certify the quality of a product**. The word "product" is used in its broadest sense, and includes processes and services. The certification of such a product is a means of providing assurance that the product conforms to standards and/or other normative documents. Certification bodies providing product certification issue product certificates or licences to organisations. The **national accreditation body** of the Czech Republic is the **Czech Accreditation Institute (CAI)** under the authority of the Ministry of Industry and Trade and notification to the European Commission (EC). The CAI has developed an accreditation system, in compliance with

international requirements and rules established by the EC and the European association European Cooperation for Accreditation (EA).

The majority of respondents in the Czech Republic and across All Countries in the QualitEE survey agreed that the main benefits of a quality assurance scheme would be an increase in customer trust and standardised quality criteria. This confirms that the establishment of quality assurance schemes for EES should be one of the key actions to support EES market growth. As regards a quality assurance scheme in the Czech Republic, most Czech respondents reported the following:

- ✔ a quality assurance scheme would result in a "moderate" or "major" increase in trust in energy efficiency services and their providers, while lack of trust is experienced at least in half of cases on the Czech EES market;
- ✔ additional costs as the main drawback to a quality assurance scheme;
- ✔ governmental/public institutions would be the most respected bodies to issue EES quality assurance certification;
- ✔ the provider or the client should be responsible for bearing the costs of quality assurance;
- ✔ a viable fee for quality assurance would be up to 1% of the value of a particular project.

Currently, there are two complementary quality assurance schemes under development in the Czech Republic. The first – the Reasonable Energy Savings programme, a quality assurance scheme for energy efficiency projects – has already been established, while still waiting for projects to register. The second scheme is in the initial stage of development. Both are described in more detail below.

The Reasonable Energy Savings programme was established by the Ministry of Industry and Trade (MIT) with the aim of providing examples of good practice in energy efficiency. Under the programme, a website of online records of implemented measures to promote energy savings and their benefits has been created. Registered projects must meet quality requirements and comply with the principles of good practice. After implementation, such projects can be awarded a certificate of quality.

The certification system for EPC services and providers is currently under development in cooperation between the QualitEE project, the MIT and the APES. Various possibilities for the introduction of the quality assurance scheme for EPC in the Czech Republic have been analysed by the study (SEVEN 2017) financed by the MIT's EFEKT2 Programme. The study recommended a system based primarily on EPC project certification. The implementation of several projects which will gain EPC project certification is essential for the subsequent certification of the EPC provider. The final recommendation Certification of Energy Savings and Services study is to establish a certification **system independent of international standards**, which is simpler and means lower costs of certification.

EPC certification system need to set quality criteria for the preparation and implementation of EPC projects and stipulate requirements for EPC providers. Provided that all evaluation criteria

required for the EPC certificate have been met, the certification body shall issue the project certificate to the applicant. Within QualitEE project, SEVEN carried out a detailed analysis to set criteria for detailed evaluation of EPC projects. Finally, 17 criteria have been selected from the draft version of the European technical criteria for the quality of energy efficiency services (EES)* (Leutgöb et al. 2017) prepared within the QualitEE project. In order to gain a certificate for an EPC project in the Czech Republic, these criteria will have to be fulfilled. The criteria focus on the following areas: savings guarantee, verification of energy savings, maintenance and repair, communication with clients, compliance with users' comfort requirements, and comprehensive contractual arrangements.

As a follow up, EPC certification system features need to be developed in more detail and discussed with the stakeholders on the EPC market. A political decision on which organisations will play three key roles in the system needs to be made: the first organisation sets out the criteria, requirements and rules of the certification system; the authorising body entrusts the certification authority with certification, and the certification body certifies projects and/or the EPC provider.

2 INTRODUCTION

2.1 Objective of the report

The objective of this report is to compile evidence to inform the development of European and national quality criteria and the implementation of quality assurance schemes for Energy Efficiency Services (EES). The report has been developed as part of the "QualitEE – Quality Certification Frameworks for Energy Efficiency Services" project supported by the EU's Horizon 2020 programme. The QualitEE project aims to increase investment in EES and improve trust in service providers.

Information has been collected through a market survey in the form of an online questionnaire and personal interviews. In addition, literature review has been conducted in existing local and national publications and documents. An analysis has been conducted and conclusions formed to be presented in this report as well as in the online database on the QualitEE project website.

This report aims to improve the market knowledge of stakeholders so that they can make better informed decisions based on evidence. The barriers and success factors for energy efficiency services, their quality determinants and as well as the related legal, political and institutional framework have been mapped. Lessons learned from existing certification frameworks will serve to establish strategies for the implementation of national quality assurance schemes.

2.2 Scope of the report and definitions

2.2.1 Energy Efficiency Services (EES)

The European standard EN 15900:2010 defines EES as an agreed task or tasks designed to lead to an energy efficiency improvement¹ and other agreed performance criteria. EES shall include an energy audit (identification and selection of actions, e.g. according to EN 16247) as well as the implementation of actions and the measurement and verification (M&V, e.g. according to IPMVP) of energy savings. A documented description of the proposed or agreed framework for the actions and the follow-up procedure shall also be provided – often referred to as an Investment Grade Proposal. The improvement of energy efficiency shall be measured and verified over a contractually defined period of time through contractually agreed methods (Amann Leutgöb 2015).

This report focuses on the following key types of EES: Energy Performance Contracting (EPC) and Energy Supply Contracting (ESC).

¹ According to the EED "energy efficiency improvement" means "an increase in energy efficiency as a result of technological, behavioural and/or economic changes".

2.2.2 Energy Performance Contracting (EPC)

According to the Energy Efficiency Directive (EED), "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."

The energy efficiency measures as above may also be based on low or no up-front investment. EPC may also include additional services related to efficient energy supply.

Within the report, the focus will be on EPC projects where the above mentioned "contractually agreed level of energy efficiency improvement" is **guaranteed** by the EPC provider. The **guarantee of energy efficiency improvement** is the commitment of the service provider to achieve a quantified energy efficiency improvement (EN 15900:2010).

This is in line with the EED, Annex XIII of which lists guaranteed savings among the minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications. Moreover, in Article 18 of the EED, Member States are required to promote the energy services market and access for SMEs to this market by, among other things, disseminating clear and easily accessible information on available energy service contracts and clauses that should be included in such contracts to **guarantee energy savings** as well as final customers' rights.


The European Code of Conduct for EPC (2014) defines that the EPC provider assumes the **contractually agreed performance risks of the project** throughout the duration of the EPC contract. These include the risks of not achieving contractually agreed savings as well as design risks, implementation risks and risks related to the operation of installed measures. If an EPC project fails to achieve performance specified in the contract, the EPC provider is contractually obligated to compensate savings shortfalls that occurred over the life of the contract. The excess savings should be shared in a fair manner according to the methodology defined in the contract.

2.2.3 Energy Supply Contracting (ESC)

"ESC means a contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered". This definition is a simplified version of the IEA DSM Task Force 16 definition.

2.2.4 Other types of energy efficiency services

In the Czech Republic, other energy efficiency services cover mostly:

-  **Comprehensive Renovation** means coordinated implementation of renovations to the thermal envelope (including building envelope insulation and substitution of fixtures)

and technology (including interventions in heating, cooling, domestic hot water and ventilation systems). The main advantage of this approach is that both types of measures can be inter-optimised within one renovation. This leads to optimal energy savings under the given volume of investment costs. These results are impossible to achieve solely by partial renovation or by implementing the two types of measures without coordination.

- ✔ **CombinES Comprehensive Renovation** is a special case of comprehensive renovation where the thermal envelope part of the renovation is subsidised and the technology part of the renovation is implemented by applying the Energy Performance Contracting (EPC) model. The CombinES Comprehensive Renovation model was described and promoted by the Combines project² co-financed by the Central Europe Programme.
- ✔ **Re-Commissioning (RECO)** is based on five key components: 1. Energy information systems; 2. Data analyses and selected measurement; 3. Optimisation of existing building technology; 4. Information and motivation of building occupants; and 5. Performance measurement and quality assurance. The Re-Co project³, co-financed by the IEE Programme, aimed at developing, testing and promoting a systematic Re-Commissioning approach to improve the operation and maintenance of non-residential complex buildings with no- or low-cost measures.

The market volume for these other services is still relatively small and they are not a focus of this report.

2.2.5 Market actors

The main actors operating on the EES markets are the EES providers, clients and project facilitators.

Within the QualitEE project, we use the EED's definition of energy service provider:

- ✔ "An '**energy service provider**' means a natural or legal person who delivers energy services⁴ or other energy efficiency improvement measures in a final customer's facility or premises."

We use the commonly used term "ESCO" as an equivalent of energy service provider. We also use the above-listed definitions to define the following terms:

- ✔ "An '**EPC provider**' means an energy service provider who delivers energy services in the form of EPC."

²http://www.central2013.eu/fileadmin/user_upload/Downloads/outputlib/CombinES_brochure_CombinES_EN-G-for-web.pdf

³ <https://ec.europa.eu/energy/intelligent/projects/en/projects/re-co>

⁴ According to the EED: "An 'energy service' means 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."

- ✔ "An '**ESC provider**' means an energy service provider who delivers energy services in the form of ESC."
- ✔ "A '**Client**' means any natural or legal person to whom an energy service provider delivers energy service."
- ✔ "An energy service project '**Facilitator**' means an advisory company working on behalf of the client to procure and/or implement an energy services." In the QualitEE project we use the shorter term "facilitator" to denote an energy service project facilitator.

2.3 Sources of data and methodology

2.3.1 Sources of data

The contents of this report are based on two main sources:

- ✔ the results of a nationwide EES survey of the country's main actors within the EES market; and
- ✔ a literature review (publications and studies, legislative documents, official statistics and databases) and the market knowledge of the authors based on 25 years of implementing EES projects and supporting EES market.

2.3.2 Survey and interviews

To collect the data used in this document, the market actors have been approached in the following manner:

- ✔ an online questionnaire was distributed to the country's most relevant EES providers and facilitators;
- ✔ personal semi-structured interviews have been conducted with financial institutions and client organisations implementing EES projects.

The market and quality survey focused on energy efficiency services gave the stakeholders an opportunity to provide their input and steer the development of quality assurance. The surveys and interviews contained questions about the EES market, barriers and success factors, EES quality determinants, minimum financial information requirements for financial institutions and certification frameworks, as well as EES-related legal, political and institutional frameworks. The answers were then analysed and the results are presented in this report in aggregated form.

There were 12 respondents to the online survey in Czech Republic:

- ✔ six representatives of ESCOs, where all of them operate on both the EPC and ESC market; these ESCOs are the most active members of the ESCO association APES;
- ✔ six representatives of EES facilitators, all of them operating on the EPC market only.

In addition, there are six respondents to the personal interviews:

- ✔ three representatives of finance houses, which are mostly the main sources of bank credits for the EPC projects in the Czech Republic;
- ✔ three EES clients.

Throughout this study the results from the online survey in the Czech Republic are compared with the results from the online survey across **All Countries** that responded. In total, there were 188 respondents to the online survey across **All Countries**:

- ✔ Respondents operate in 15 European Countries; Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Greece, Italy, Latvia, the Netherlands, Portugal, Slovakia, Slovenia, Spain and the UK.
- ✔ Respondents include 109 representatives of ESCOs, where 53 of them operate on the EPC market only, and 11 operate on the ESC market only and 45 on both the EPC and ESC markets.
- ✔ Respondents include 79 representatives of EES facilitators, where 37 of them operate on the EPC market only, and 17 operate on the ESC market only and 25 on both the EPC and ESC markets

2.3.3 Literature and other sources of data

Apart from the surveys, the reports build on research from local and national literature (legislative documents, publications and studies, official statistics and databases) and the market knowledge of the authors based on 25 years of implementing EES projects and supporting the EES market.

The key sources of information were up-to-date national sources, such as:

- ✔ data and studies by the Association of Energy Service Providers (APES);
- ✔ publications by the Ministry of Industry of the Czech Republic.

The report also builds on the data and information gathered primarily by the Transparens project and other previous European projects (EESI2020, CombinES) and projects run in parallel (EPC+, GarantEE).

3 LEGAL AND REGULATORY FRAMEWORKS

3.1 Key governmental institutions

In the Czech Republic, the Ministry of Industry and Trade (MIT) is a key governmental institution responsible for the whole energy sector and thus also for the support of energy efficiency and energy efficiency services. Its role in the area of energy efficiency services (EES) is described in the text below:

- ✔ implementation of the Energy Efficiency Directive (EED) and its transposition into Czech legislation;
- ✔ preparation and implementation of national energy efficiency action plan - NEEAP and state energy policy;
- ✔ preparation of EES model documents and project implementation guidelines;
- ✔ establishing support schemes for energy efficiency and EES.

3.2 Implementation of the EU Energy Efficiency Directive

The Energy Efficiency Directive (EED) establishes a common framework of measures for the promotion of energy efficiency within the EU in order to ensure the achievement of its 2020 20% headline target on energy efficiency.

Article 18 of the EED imposes obligations on Member States **to support the energy services market**. In the Czech Republic, the following obligations have been transposed so far:

- ✔ Defining compulsory provisions which must be included in the energy service contract in case such a contract is concluded in the public sector under Article 10e of the Czech Energy Management Act (No. 406/2000). These provisions reflect all the "Minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications" (Annex XIII to the EED).
- ✔ Providing an overview of financial instruments, incentives, grants and loans to support energy service projects in the NEEAPs and annual reports on progress towards national energy efficiency targets in the Czech Republic pursuant to Article 24 of Directive 2012/27/EU.
- ✔ Publishing a list of companies operating in the area of energy services⁵ in line with the Act on Energy Management and its Article 10f. The list distinguishes among EPC providers and providers of other energy services. It is regularly updated and available on the website⁶ of the MIT.

⁵ <https://www.mpo.cz/dokument170967.html>

⁶ <https://www.mpo.cz/cz/energetika/energeticka-ucinnost/energeticke-služby/seznam-poskytovatelu-energetických-sluzeb--170967/>

- ✔ Establishing a Reasonable energy savings programme to provide information on best practices and quality label for projects fulfilling the quality requirements established by the programme. In addition, the MIT supports the development of a certification framework for EPC projects and EPC providers, e.g. by providing financial support to conduct a study proposing such a system from the EFEKT programme.
- ✔ Providing a qualitative annual review in the framework of the NEEAP regarding the current and future development of the energy services market.

The obligation to draw up an energy audit according to Article 8 of EED was introduced into Czech law in 2012 by amendment of the Energy Management Act and is another factor positively influencing EES market. The **obligation of drawing up an energy audit and repeating the process every four years** applies to enterprises that are not small or medium-sized as defined by Commission Recommendation 2003/361/EC. (MIT 2017). Regardless of the definition of the size of a company, there is an obligation to draw up an energy audit for organisations (specified by law) with **total annual energy consumption of all its buildings and energy management systems above 35,000 GJ**, which was introduced already in 2001.

3.3 National strategy documents

3.3.1 National Energy Efficiency Action Plan

The **fifth update of the National Energy Efficiency Action Plan** - NEEAP (MIT 2017) sets the strategy of the Czech Republic in the area of energy efficiency improvement. It updates a list of energy efficiency improvement policy measures set by the previous version of the NEEAP and related expected or achieved energy savings.

The NEEAP reports on the **alternative scheme according to Article 5 of the EED**, and specifies the role of energy services. The MIT was obliged to prepare compilation of a list buildings falling under Article 5 of the Directive, and draw up framework for organisation, funding and evaluation of the implementation of energy-saving measures in state-owned buildings used by organisational units of the state and state organisations. The measures adopted by the Czech Republic to meet the obligations of Article 5 by an 'alternative' approach are no-cost or low-cost measures, measures with an economic return of 10 years, in particular the reconstruction of heat sources and heating systems (including the introduction of efficient regulation) suitable for the EPC method, and measures with a longer return period, i.e. construction and technical measures. With respect to financial side, priority is given to measures leading to maximum energy savings. (MIT 2017)

In the area of energy services, the plan proposes that EPC is promoted and employed in the tertiary sector. The methodology for the preparation and implementation of EPC projects in the public sector and, in particular, state administration will be amended. The aim is for EPC to become one of the significant methods employed in achieving energy savings in buildings.

The NEEAP covers the launch of the financial measures included in the alternative fulfilment scheme for the Czech Republic Article 7 of the EED:

- ✔ State programme to promote energy savings 2017-2021 (EFEKT 2 Programme);
- ✔ Financial instruments in the area of energy efficiency (ENERG Programme; Energy Savings financial instrument of Operational Programme Enterprise and Innovation for Competitiveness)
- ✔ Reasonable Energy Savings Programme.

These measures provide direct support for the use of energy services or can be combined with energy services. The programmes listed above are described in more detail in part 3.5 on support schemes.

3.3.2 National Reform Programme

The National Reform Programme is a conceptual document of the Czech Government that sets out a plan for key measures to promote economic growth and employment and is updated annually. The measures contained in the programme aim to achieve the national targets laid down in the Europe 2020 Strategy, which includes the target of improving energy efficiency.

In the area of energy efficiency, the National Reform Programme refers to the measures set out in the National Energy Efficiency Action Plan and provides an overview of the main programmes funding measures to increase energy efficiency, i.e. the programmes financed from the European Structural and Investment Funds as well as the EFEKT 2 Programme and the ENERG Programme.

3.3.3 State Energy Policy

On 18 May 2015, the Government of the Czech Republic approved an updated State Energy Policy (MIT 2015) for the next 25 years. The objective stated in the State Energy Policy is to ensure reliable, secure and environmentally friendly supplies of energy to meet the needs of the population and economy of the Czech Republic, at competitive and acceptable prices under standard conditions.

The State Energy Policy formulates the priorities and strategic intentions of the state in the energy sector. With regard to energy efficiency services under the energy efficiency chapter, it aims to implement energy management and EPC in the public and private sector. Under priority II. Increasing energy efficiency of the national economy, it lists a measure to support use of EPC services in the “non-residential sector”, i.e. in the public and tertiary sector.

3.4 Standardisation for energy efficiency services

In terms of standardisation, one important milestone was the Resolution of the Government of the Czech Republic dated 19 October 2011, which stipulated, among others, drafting of a model EPC contract and a programme for renovation of public buildings. In 2012, based on the resolution, several **documents to provide guidance on EPC projects preparation and implementation** were prepared by the APES with the support of the MIT. Another milestone

was an amendment to the Energy Management Act in 2015 establishing definition and contents of model contract for EPC.

In addition to the national documents, a number of guiding documents and tools were developed and published in the framework of several Intelligent Energy Europe and Horizon2020 projects: EESI, EESI2020, Transparens, EPC+ and GarantEE.

3.4.1 Model documents

The **EPC model contract** was created primarily for the purposes of EPC public contracting by contracting authorities, but can also be used for private clients. It reflects all the experience and knowledge gained over years on the Czech market and also includes all the annexes to the contract setting key parameters of the project. It is available for download on the websites of the MIT and the APES.





The first version of the model contract created in 2012 was modified in 2015 in accordance with Annex XIII to the EED by an amendment to Energy Management Act (No. 406/2000). It also reflects new procurement law Act No. 134/2016. Henelová and Donkelaar (2017) provide detailed analysis and conclude that the Czech model contract fully reflects the obligatory minimum items of the EPC contract applied in the public sector listed in Annex XIII of the EED.

With respect to **energy supply contracting**, there is no model contract established in the Czech Republic. The existing model contract for heat delivery does not reflect energy efficiency improvement measures.

3.4.2 Guidance on the preparation and implementation of EPC projects

In addition to the model contract, a number of guiding documents have been prepared in cooperation with the MIT and the APES.

The following documents are publicly available on the website⁷ of the MIT:

-  EPC model contract and its annexes;
-  EPC guide for public contracting authorities on the process of preparing a public procurement procedure for EPC;
-  European Code of Conduct for EPC;
-  Government Resolution No. 109 of 22 February 2012 on finalisation of the methodology for use of the Energy Performance Contracting (EPC) method (Czech Government Resolution).

In addition, there are a number of guides on EPC project implementation available at the APES website⁸, of which the most relevant are the following:

⁷ <https://www.mpo.cz/cz/energetika/energeticka-ucinnost/energeticke-sluzby/energeticke-sluzby-se-zarukou---energy-performance-contracting-epc--105425/>

⁸ <http://www.apes.cz/stazeno.php>

- ✔ Accounting rules, financing and tax issues of EPC implementation in the public sector (APES 2017);
- ✔ Methodology for EPC projects in public lighting (SEVEN Energy s.r.o. 2017);
- ✔ EPC implementation in the context of new European procurement directives (APES 2014).

These publications have been prepared with the financial support of the EFEKT programme.

3.5 European Code of Conduct for EPC

The European Code of Conduct for EPC defines the basic values and principles that are considered fundamental for the successful preparation and implementation of EPC projects. The Code of Conduct has been developed within the Intelligent Energy Europe project Transparens in cooperation with EPC providers, clients and European ESCO associations, among others. The two organisations representing ESCOs at the European level – the European Association of Energy Service Companies (eu.esco) and the European Federation of Intelligent Energy Efficiency Services (EFIEES) – endorse the European Code of Conduct for EPC and support its use when implementing EPC projects and continue in administering and maintaining the Code of Conduct. By the end of October 2017, the Code of Conduct had 234 signatories across Europe. This includes 148 EPC providers, 13 national associations (with 160 members in total), two European associations of ESCOs and 70 facilitators and other signatories. The European administrators organise regular conference calls with national administrators to exchange information about regulatory developments and new projects.

It is expected that the European Code of Conduct for EPC will serve as a harmonised European quality standard of EPC projects, raise potential clients' confidence in the business model and thus lead to higher demand for EPC projects.

The list of Code signatories is available online and promoted within eu.esco and EFIEES activities (press releases, articles, national and international events). EPC providers who become signatories of the EPC Code undertake to conduct EPC projects in compliance with the EPC Code of Conduct. It is a voluntary commitment of the EPC providers and is not legally binding.

The Code has vast potential to support EPC market development, which can be exploited. For example, it has been used as a discussion guideline between client and EPC provider, guidance for the preparation of tender dossiers and contracts, and as a marketing tool. Within the QualitEE project, it is being used as a starting point for developing an energy service quality assurance scheme.

In the Czech Republic, the Association of Energy Service Providers (APES) acts as the national administrator for the Code. The document is hosted on the APES website along with a list of existing Czech signatories and application forms for new signatories. Czech signatories include the APES, majority of its members and a few other organisations. In total, there are 21 signatories: 11 EPC providers and 10 EPC facilitators.

EPC providers use the Code as a promotional tool; these companies highlight their signatory status in their websites and marketing literature.

The Code of Conduct proved useful when the benefits of the EPC were explained to clients, bolstering their motivation to save the operation costs of their facilities. The feedback from them showed that they found the Code helpful for understanding the EPC process and what to expect from the EPC provider. The Code was found especially useful when the benefits of the EPC were explained to the clients – the fact that the EPC is a method well established internationally helped to gain clients' trust in the method (Szomolányiová and Černý 2015).

3.6 Support schemes

In the **Czech Republic**, a few support programmes currently can be used to co-finance the preparation and/or implementation of EES projects as described below. These programmes are included in the alternative fulfilment scheme for the Czech Republic Article 7 of the Energy Efficiency Directive.

State programme to promote energy savings 2017-2021 (EFEKT 2 Programme)

- ✔ The EFEKT 2 Programme emphasises soft measures aimed at raising awareness of the benefits of energy savings, providing energy consultancy and **supporting the implementation of EPC projects and energy management**. It contributes to costs of preliminary analysis on the suitability of the selected facilities for EPC. The programme also supports the implementation of energy-saving measures, mainly the reconstruction of public lighting. These subsidised measures can be combined with EPC project.
- ✔ Compared to the EFEKT programme, the EFEKT 2 Programme expanded supported activities, for example, to support the implementation of energy-saving measures implemented in buildings by means of the EPC method. Energy management support now also includes support for the business sector.
- ✔ Compared to the EFEKT programme, there was also an increase in the amount allocated for 2017 – 2021 to CZK 750 million, which represents an annual budget of maximum CZK 150 million (as recently as 2015 the EFEKT programme had annual allocated funds of CZK 30 million). According to the MIT (2017), the EFEKT programme has supported preliminary analysis on the suitability of the selected facilities for EPC for 775 sites between 2012 and 2016.

Programme Reasonable energy savings

- ✔ Launched in 2017 by the MIT.
- ✔ The programme is focused on the promotion and recording of successful energy-saving projects, and has the potential to help raise awareness about energy savings.
- ✔ Part of the programme is also the provision of quality labels to certified energy service providers, consultants, designers and energy specialists involved in the implementation of high-quality, proven energy-saving projects. It is a tool to provide

potential investors with motivation and "guidance" for the preparation of new high-quality projects with high energy savings.

- ✔ The programme is linked to a new activity under the EFEKT 2 Programme, supporting a feasibility study with an optimal combination of saving measures. This support is focused on the housing, public and business sectors.

Operational Programme Environment (OPE) 2014 – 2020

- ✔ Main target groups: owners of public buildings.
- ✔ The activities supported under specific objective 5.1 are to predominantly reduce energy consumption by improving the thermal properties of building envelopes, including additional measures to increase energy performance of buildings.
- ✔ Subsidies should be provided in particular for measures with a longer payback period, i.e. mainly thermal insulation of buildings. The measures with a shorter payback period (heat management in buildings and the renovation of the related technological equipment) should be **implemented through EPC** or other financial instruments (Ministry of Environment 2014). In the current call (Ministry of Environment 2018) open until January 2019, EPC projects receive 5% extra points in evaluation.

The MIT (2018) states that the Czech Republic's long-term effort is to increase the cost-effectiveness of the support system for energy efficiency and to focus on the provision of reimbursable support through financial instruments. On this basis, financial instruments were launched in 2017 under the ENER G Programme and under the Energy Savings Programme of the Operational Programme Enterprise and Innovations for Competitiveness as described below.

ENERG Programme

- ✔ Announced by the MIT and administered by the Czech-Moravian Guarantee and Development Bank.
- ✔ The programme is designed as a pilot financial instrument providing concessional loans to small and medium-sized enterprises to **implement energy-saving projects in Prague**.
- ✔ The preferential loan is supplemented by a financial contribution for achieving the specified amount of energy savings and a financial contribution for processing the energy assessment.

Energy Savings of Operational Programme Enterprise and Innovation for Competitiveness

- ✔ Administered by the Czech-Moravian Guarantee and Development Bank.
- ✔ Main target groups: Industries and energy services providers.
- ✔ The objective of the financial instrument is to provide part of OP EIC funds in the form of preferential loans combined with interest rate subsidies and financial contribution for the processing of energy assessments.

4 ENERGY PERFORMANCE CONTRACTING MARKET

4.1 EPC market actors

The key players on the EPC market are the following organisations: EPC providers, the Association of Energy Service providers (*Asociace poskytovatelů energetických služeb – APES*), public organisations having experience with EPC, EPC facilitators, financial institutions, and the Ministry of Industry and Trade (MIT).

4.1.1 Association of Energy Service Providers (APES)

Historically, the success of EPC in the Czech Republic can mainly be attributed to the continuous bottom-up efforts of energy service companies. Since 2010, these efforts are concentrated within the Association of Energy Service Providers. The APES has been very active since its foundation in supporting the expansion of the Czech EPC market by attempting to remove existing barriers. It initiated work on the standardisation of EPC model documents and also prepared its code of conduct. It organises or co-organises annual EPC conferences as well as a number of smaller events and seminars. In 2018 it organises a series of seminars on EPC and opportunities to combine EPC projects with subsidies. Since 2011, there is an annual competition for the best EPC project where the winners are awarded in highly publicised annual EPC conferences, bringing further attention to EPC.

4.1.2 EPC providers

The APES website (www.apes.cz) includes a list of its 26 members, with their contact details and websites. Members include energy service companies, facilitators, two research institutions and one supplier of technology equipment.

Currently, there are 13 members of the APES offering EPC on the Czech market, of which six are very active and submit tenders for several calls annually. In addition, there are a few companies which are not members of the APES claiming to provide EPC on their websites or on the list of EPC providers published by the MIT. However, most of them have not implemented any EPC project yet.

In a typical EPC public procurement procedure in the Czech Republic, between three and six offers are usually received.

4.1.3 EPC consultants, facilitators and clients

There are 11 members of the APES who provide consultancy related to EPC projects, including legal, organisational, technical and economic support. Six of them provide full EPC facilitation, including all phases of the EPC process – in particular preparatory analyses, procurement process and measurement and verification. Most EPC projects have been implemented by clients in the public sector with the support of EPC facilitators.

4.1.4 Ministry of Industry and Trade (MIT)

A key governmental institution to support energy services is the Ministry of Industry and Trade as described in detail in part 3.1 above. The MIT supports the development of model documents and guidelines and publishes them on its website, and financially supports preliminary analyses of the suitability of public and governmental buildings for EPC projects.

4.2 EPC market developments

The development of the Czech Energy Performance Contracting market, using a literature review and the results of the QualitEE survey (2017), can be summarised as follows:

- ✔ The EPC market in the Czech Republic is well-developed, with high know-how among EPC providers and acceptance of EPC by several banks, providing substantial financing opportunities for current EPC projects.
- ✔ The first EPC project in the Czech Republic was carried out as early as 1993. Between 1994 and 2017, about 240 EPC projects have been implemented with a value above CZK 300 billion and leading to total energy savings of CZK 3.3 billion (Chance for Buildings 2018), equivalent to more than EUR 100 million. The market has been growing very slowly but steadily, with about 10 EPC projects implemented per year.
- ✔ Currently, the EPC market is experiencing stagnation. According to the Association of Energy Service Providers (APES 2017), in 2016 nine new EPC projects were commissioned with a value of CZK 259 million (EUR 9.8 million). In 2017, another nine new EPC projects were commissioned on 39 sites with a total value of CZK 249 million (Chance for Buildings 2018), equivalent to EUR 9.2 million.
- ✔ EPC providers and facilitators reported in the QualitEE survey (2017) that the market for EPC services is stagnating or experiencing slight growth in the Czech Republic. Stagnation was indicated by 36% of Czech respondents, despite the APES data confirming stagnation. The proportion of Czech respondents estimating that the EPC market was experiencing slight growth over the last 12 months was equal to the proportion of respondents experiencing slight growth in their orders (45% each), so the slightly more optimistic perception of the market development might be due to the concrete sample of respondents who are marginally more successful. Respondents in the Transparens survey (2015) also perceived the market as stagnating (43%) or growing slightly (14%).

- ✔ As a result of EPC projects commissioned in 2017, building owners will save CZK 39 million on energy bills every year. In total, savings of all active EPC projects have shown a slightly rising trend between 2015 and 2017. In 2017, all 80 active EPC projects generated annual energy savings of 17 GWh and CZK 322 million (APES 2018). This was slightly higher than in 2016, when the total savings of all active projects constituted CZK 300 million, which was again 12% higher than in 2015. EPC projects commissioned in 2016 generated financial savings of CZK 41 million (APES 2017).
- ✔ The survey reported that typical EPC contracts in the Czech Republic are held with public sector clients. Municipalities are followed by two other key areas of the public sector: healthcare and education.
- ✔ Respondents have been involved in projects with capital outlay of EUR 0.5 – 1 million and contract length of 5 – 10 years. Based on the author's experience and research, typical EPC contract lengths in the public sector are 8 – 10 years.
- ✔ The guaranteed savings model dominates the Czech EPC market.
- ✔ Emphasis on energy savings performance (measurement & verification) analysis by independent third parties was shown and is usually provided by the EPC facilitator who organised the procurement process.
- ✔ "Administrative barriers in the public sector" and "Complexity of the concept / Lack of information" were reported as the top two barriers to EPC business. These are followed by "Lack of government support", "Lack of trust in the ESCO industry" and "Low energy prices". These barriers may explain why the huge potential of EPC in public institutions is still untapped.
- ✔ Whilst a full range of financing options for EPC appears to be in use within the Czech Republic, the vast majority of Czech EPC providers and facilitators (73%) are involved in EPC projects financed by sale of claims – where EPC service payments are sold by the service provider to banks. Sale of claims is generally well accepted as main collateral. This is probably why obtaining financing is perceived as easy and why financing is not reported as a barrier to EPC project implementation. The second most common method of EPC financing is supplier-arranged debt finance.
- ✔ When asked in which areas are quality improvement most needed in EPC project preparation and implementation, the top three areas indicated by Czech respondents were communication between provider and client, followed by preliminary analysis and user information and motivation.
- ✔ The following text provides full details and figures relating to the conclusions drawn above.

According to the QualitEE survey conducted in September 2017, the majority (73%) of Czech respondents – EPC providers and facilitators – became involved in between one and five EPC projects in the last 12 months. This is consistent with the results across All Countries in the survey, where 63% of respondents selected this category. On the other hand, almost 20% of Czech respondents participated in 11 – 20 projects, which is significantly above the All

Countries dataset (6%). Only 9% of Czech respondents did not become involved in any new projects in contrast to 15% of respondents across All Countries.

Figure 1 How many EPC projects (that have reached Contract Signature) has your organisation initiated / become involved with in the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)

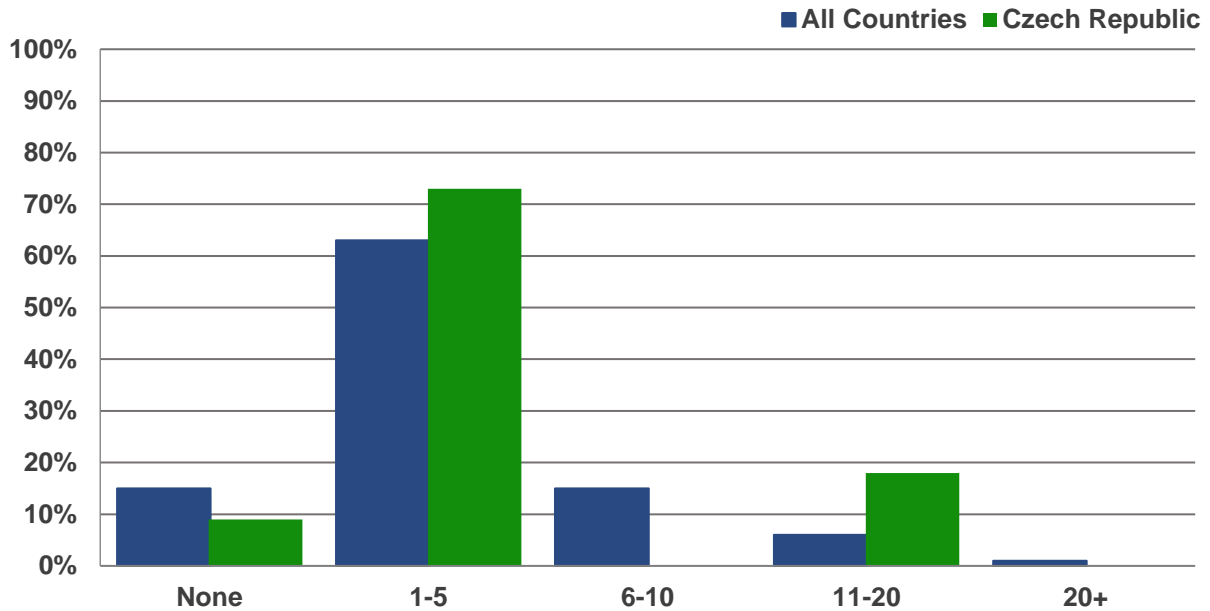
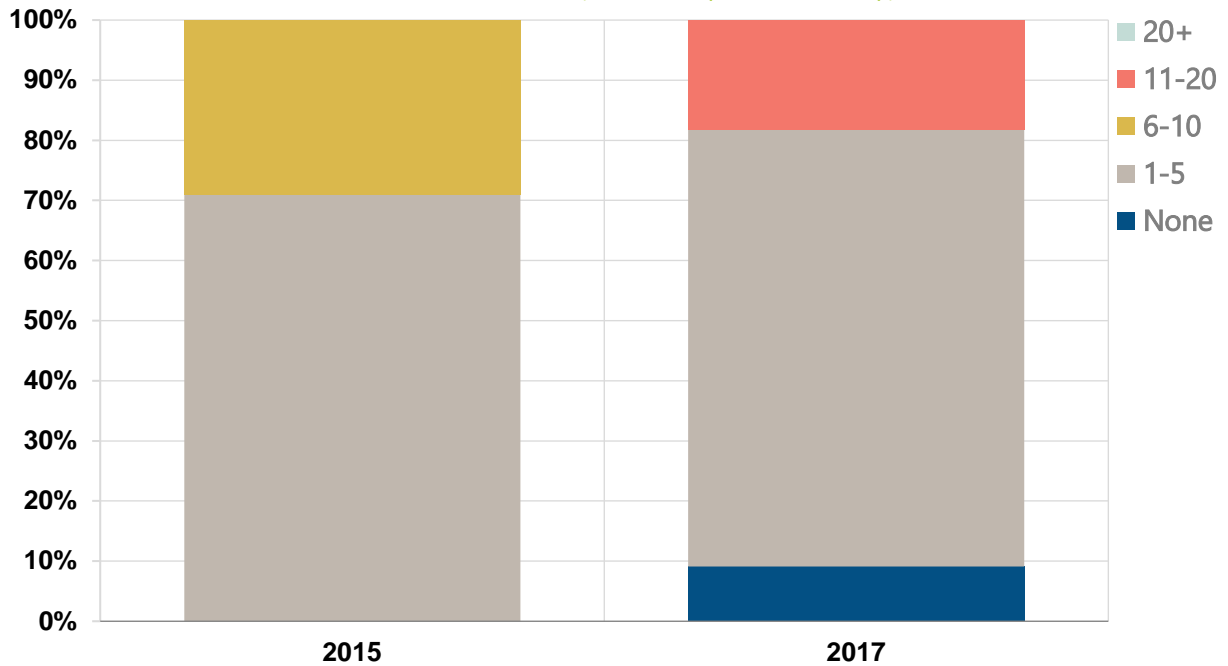


Figure 2 Timeseries (2015, 2017) How many EPC projects has your organisation initiated / become involved with in the last 12 months? (Czech respondents only)



Czech providers and facilitators reported a slightly less positive picture of EPC orders over the last 12 months than seen across All Countries in the survey. The majority (61%) of Czech respondents experienced growth, whilst "Slight Growth" was most selected (45%). "Major Growth" was selected by only 9% of respondents, considerably lower than among respondents across All Countries (19%). A decline in orders was witnessed by 27% of Czech respondents, considerably higher than the 14% reported over the All Countries dataset. When considered alongside a lower number reporting "Little Change" (CZ – 18%, All Countries – 37%) this indicates higher volatility of contracted volumes among Czech respondents in comparison to their European counterparts.

When comparing results with Transparence surveys conducted in 2013 and 2015, a slight increase in the percentage of respondents reporting growth can be seen (from 50% in 2013 to 54% in 2017). However, the percentage of respondents reporting major growth has decreased from 29% in 2015 to 9% in 2017.

Figure 3 In the last 12 months your EPC orders have seen (Percentage share of responses by providers and facilitators Sept 2017)

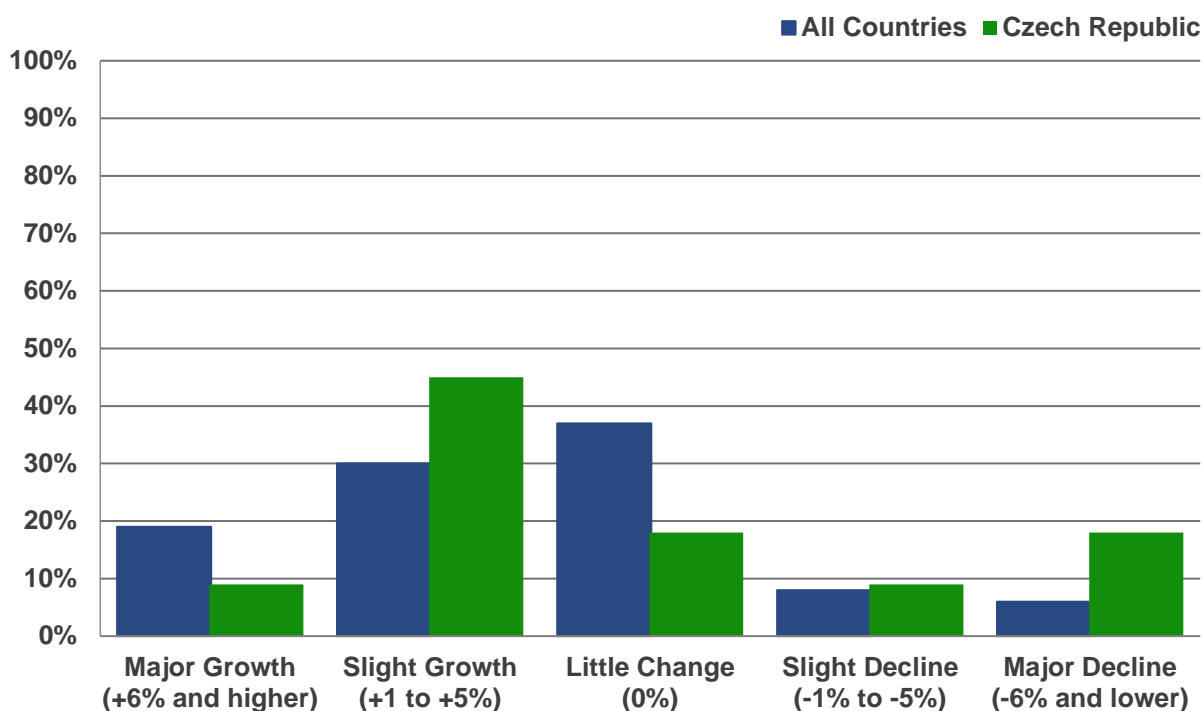
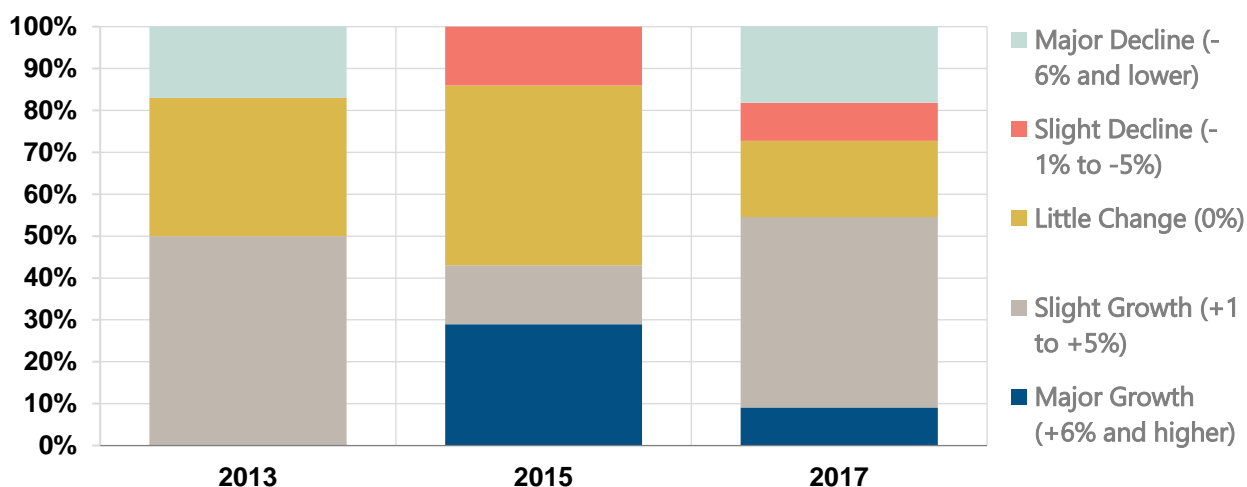


Figure 4 Timeseries (2013, 2015, 2017) – In the last 12 months your EPC orders have seen (Czech respondents only)



Czech respondents are mainly involved in higher value EPC projects worth at least EUR 500,000 or more (81%), significantly higher than reported across All Countries (53%). Most frequent (45% of cases) are middle-sized projects with an investment value between EUR 500,000 and EUR 1,000,000. Timeseries show that though in 2017 all value categories are represented among responses, this was not the case in 2013 and 2015, when there were no projects with a value below EUR 200,000 or with a value over EUR 5,000,000.

Figure 3 What is the most common overall value (investment outlay) of the EPC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)

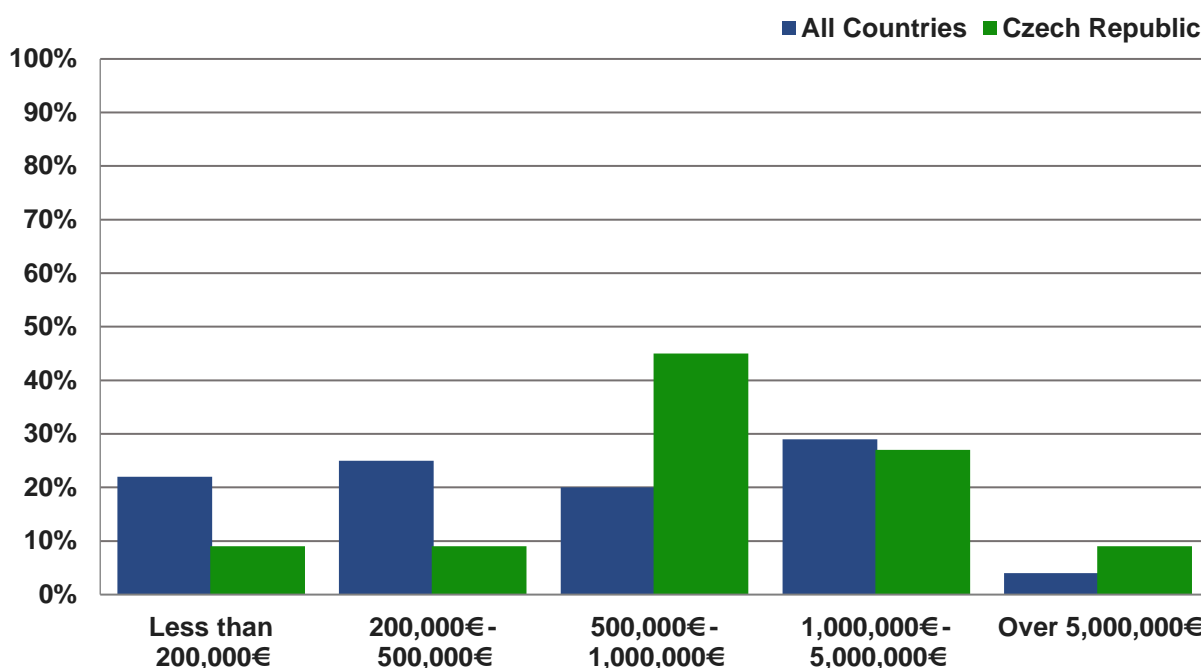
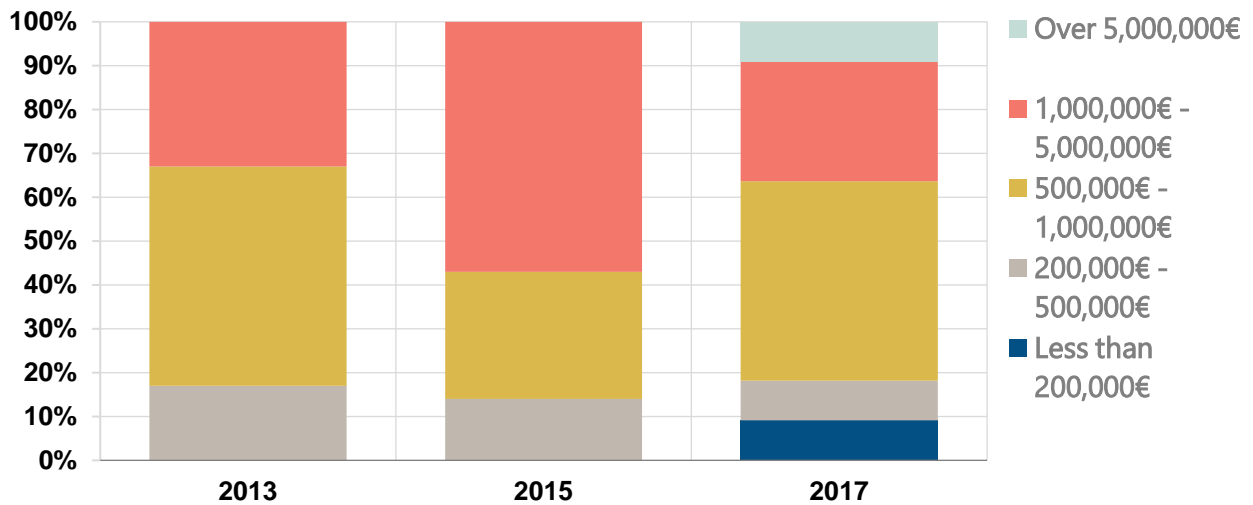
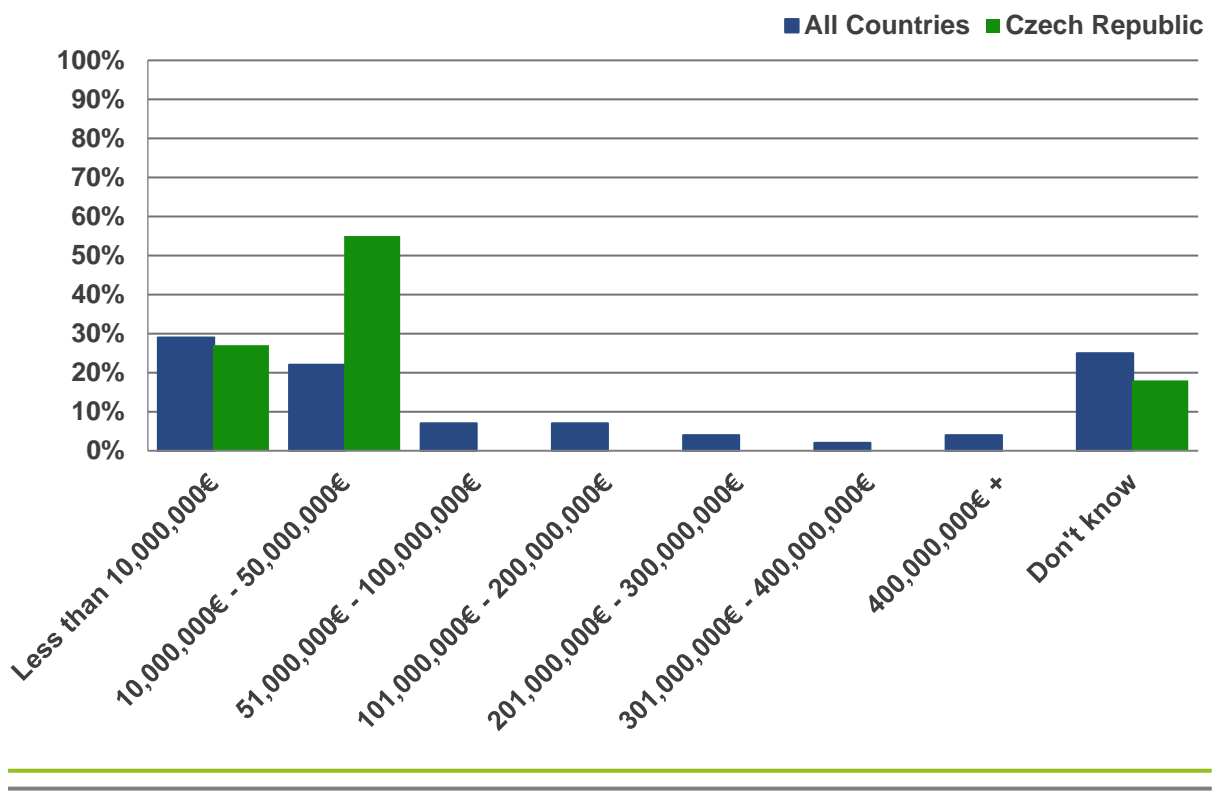


Figure 5 Timeseries (2013, 2015, 2017) - What is the most common overall value (investment outlay) of the EPC projects you are involved in? (Czech respondents only)



The majority of Czech EPC providers and facilitators (82%) agreed that the market volume was worth below EUR 50,000,000, which is significantly higher than the number of respondents across All Countries (51%). Over half of Czech respondents (55%) believe that the EPC market in the Czech Republic in 2016 was worth between EUR 10,000,000 and EUR 50,000,000, while 27% estimate it was not more than EUR 10,000,000. Eighteen percent of respondents were not willing to speculate.

Figure 6 How much revenue do you think the EPC market in your country generated in 2016? (Percentage share of responses by providers and facilitators Sept 2017)



Based on the opinion of EPC providers and facilitators, the market for EPC services is stagnating or experiencing slight growth in the Czech Republic as well as across All Countries. The proportion of Czech respondents estimating that the EPC market was experiencing slight growth over the last 12 months was equal to the proportion of respondents experiencing slight growth in their orders (45% each). Stagnation was indicated only by 36% of Czech respondents despite the APES data confirm stagnation in 2017. Interestingly, individual data show that 82% of respondents estimated the overall market growth development to be the same as development in their orders. This might explain a little bit more optimistic perception of the market development in the survey as this might be caused by the concrete sample of respondents who are slightly more successful on the market.

None of the Czech respondents felt the market was experiencing major growth, compared to 9% who reported that their own orders had experienced major growth. This made the overall picture slightly less positive than reported across All Countries in the survey, where 49% indicated market growth, i.e. 14% reported major growth and 39% slight growth. The number of respondents who think the EPC market is declining is fairly small (All Countries 10% CZ 18%).

The perception of Czech market development has changed considerably since 2015, as the number of respondents indicating major growth decreased from 29% to zero.

Figure 7 Over the last 12 months, the EPC market in your country has seen: (Percentage share of responses by providers and facilitators Sept 2017)

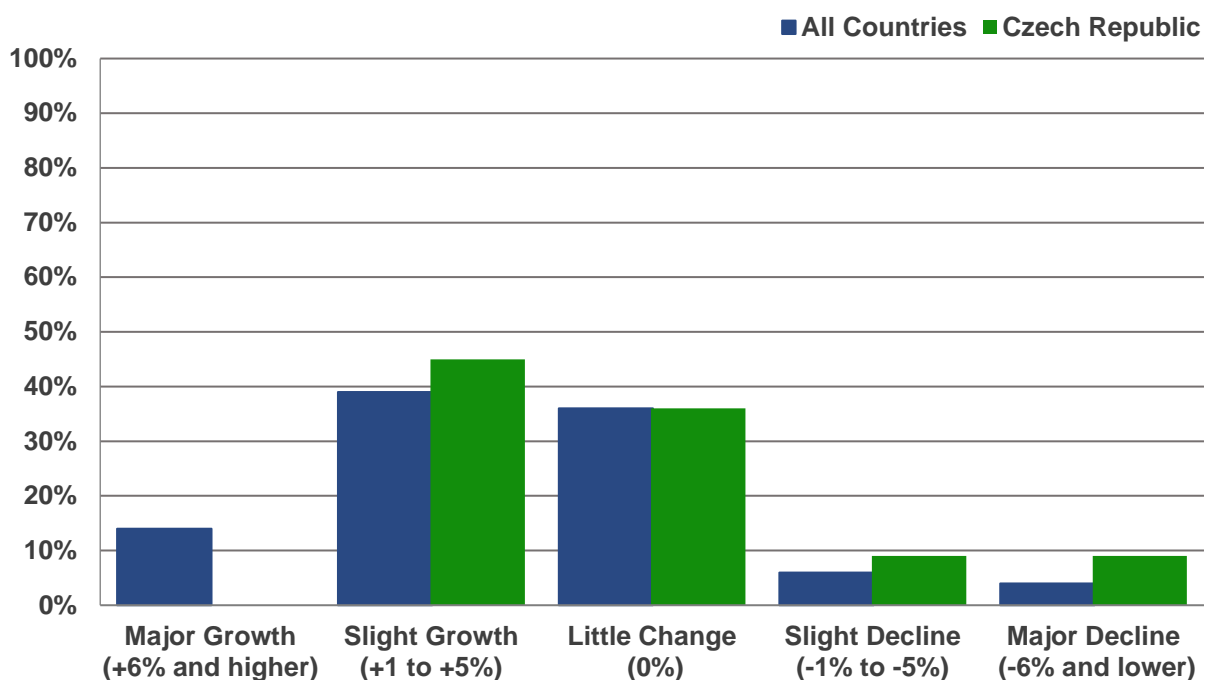
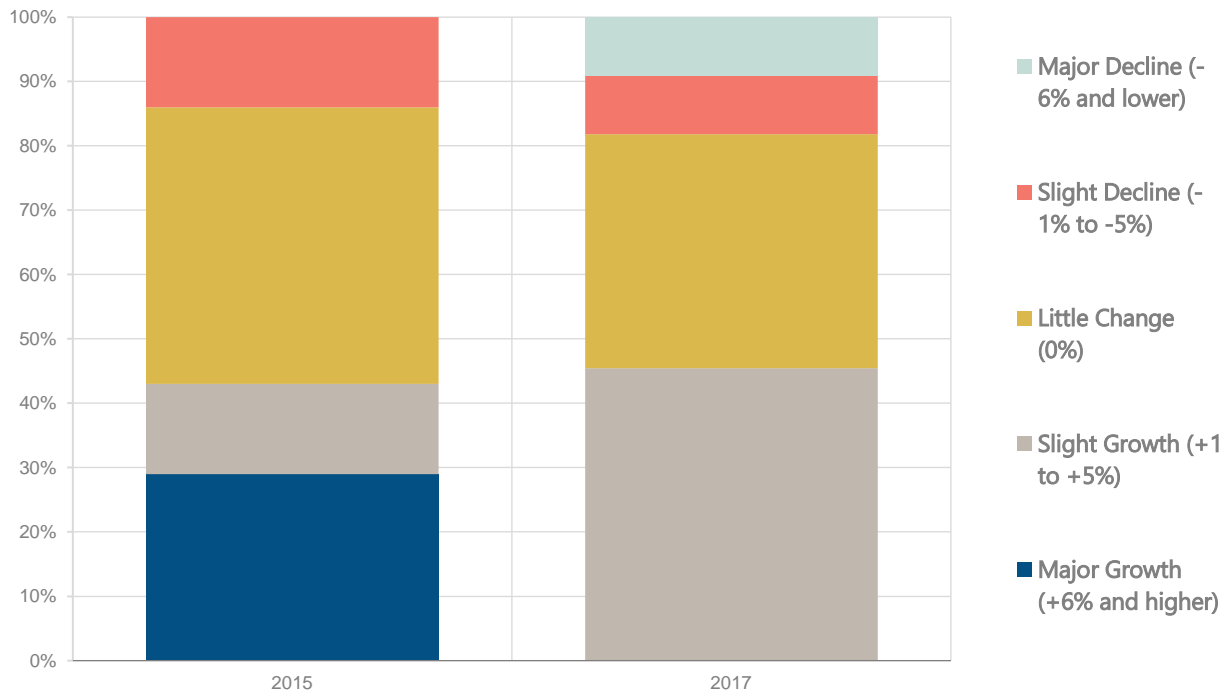


Figure 8 Timeseries (2013, 2015, 2017) – Over the last 12 months, the EPC market in your country has seen (Czech respondents only)

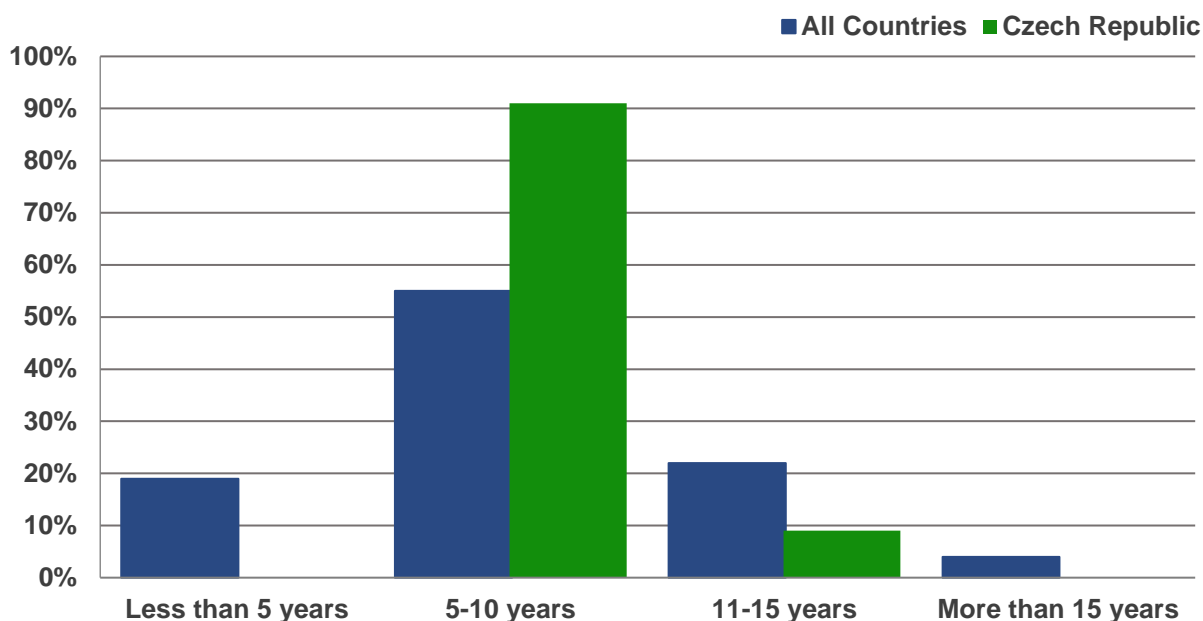


4.3 EPC business models

The majority of Czech EPC providers and facilitators (91%) agreed that the most common duration of the EPC projects they are involved in is between 5 and 10 years (Figure 9). Only 9% of Czech respondents indicated that the most common duration of their projects is 11 – 15 years.

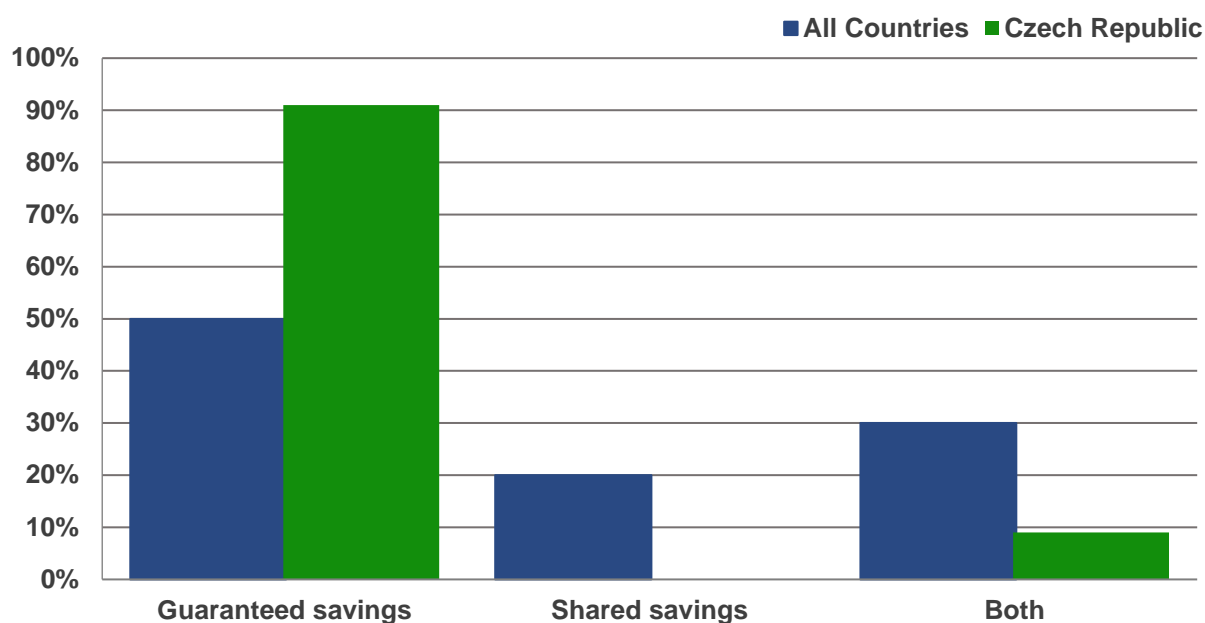
No respondents reported that the most common length of their projects was less than five years or more than 15 years. This is at odds with the picture across All Countries in the survey, where almost 20% of all projects are shorter than five years and the share of projects longer than 10 years (26%) is greater than in the Czech Republic.

Figure 9 What is the most common duration of the Energy Performance Contracts you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)



The vast majority of respondents (91%) in the Czech Republic agreed that the guaranteed savings model is dominant with no providers or facilitators focusing purely on the shared savings mode (Figure 10). Only 9% of respondents use both models. This is in stark contrast to the picture across All Countries, where half of respondents reported that they use the shared savings model either alone or as an alternative to the guaranteed savings models.

Figure 10 What type of energy savings model is offered in the EPC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)

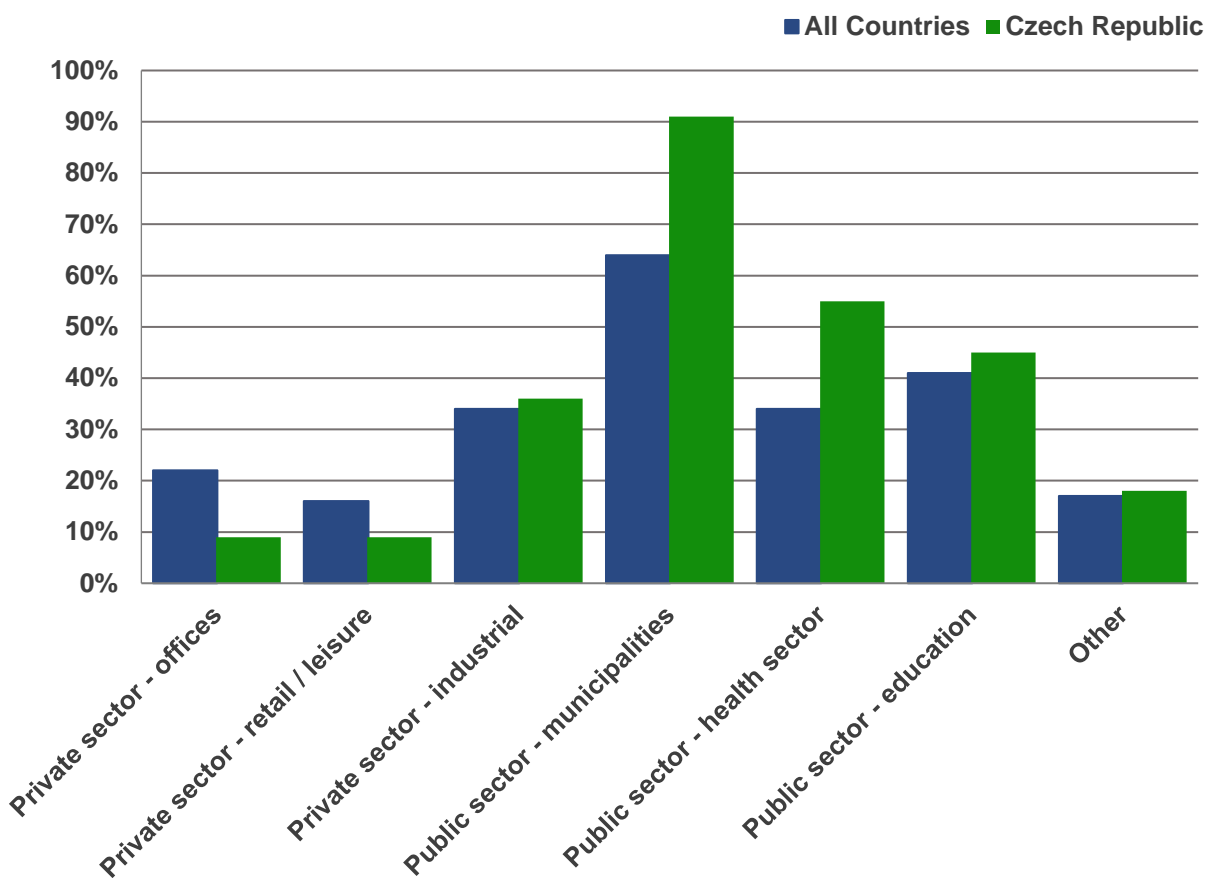


Note: In a shared savings model, the client pays the ESCO a pre-determined percentage of its achieved cost savings from the project

4.4 EPC market sectors

The survey confirms that the public sector drives the EPC market in the Czech Republic. The vast majority of Czech EPC providers and facilitators (91%) report that their clients are most frequently municipalities, which is considerably higher than across All Countries (64%). In the Czech Republic, municipalities are followed by two other key areas of the public sector, i.e. healthcare (55%) and education (45%). Similarly to the picture across All Countries, 36% of EPC provider and facilitator respondents in the Czech Republic are working with industrial clients.

Figure 11 Which sectors do your EPC clients generally come from? (Percentage share of responses by providers and facilitators Sept 2017)



Note: 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%.

4.5 EPC measurement & verification

In the Czech Republic, a greater emphasis on energy savings performance analysis by independent third parties (measurement & verification) was shown in the survey than is the norm across All Countries. This option was selected as typical by 45% of Czech EPC providers and facilitators, twice as many as among respondents across All Countries (Figure 12). This is consistent with the fact that in the Czech Republic it is usually the EPC facilitator who originally assisted with organisation of the procurement who provides energy savings performance for projects in the public sector. Such an EPC facilitator (or other consultant) checks the results of energy savings performance provided by the EPC provider (in the so-called annual monitoring reports according to the Czech model contract). By using expert consultancy, clients are better placed to report from their EPC providers. This makes the verification and measurement more reliable compared to cases where it is done solely by the EPC provider (CZ 36% vs. All Countries 71%).

Similarly to the picture across All Countries, energy savings performance of EPC projects in the Czech Republic are mostly quantified by specified M&V process as reported by 82% of EPC providers and facilitators (Figure 12). Automated metering is typically used in 18% of cases, just slightly less in comparison to 20% across All Countries.

Figure 12 Who typically delivers the energy savings performance analysis in the EPC projects you are involved with? (Percentage share of responses by providers and facilitators Sept 2017)

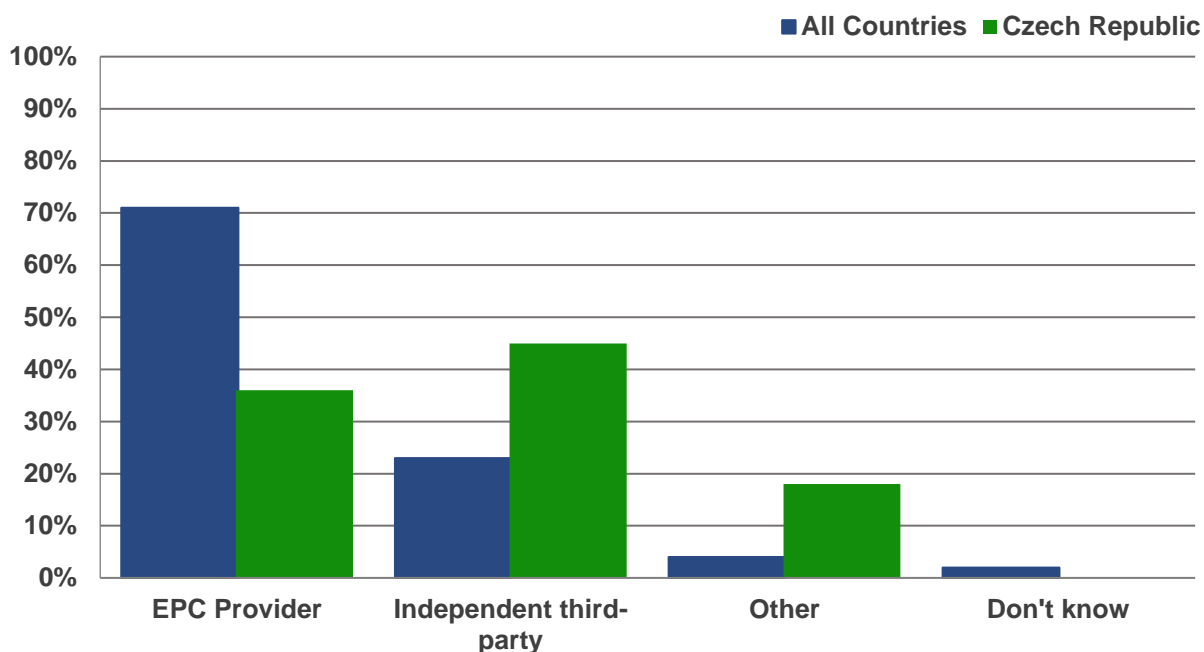
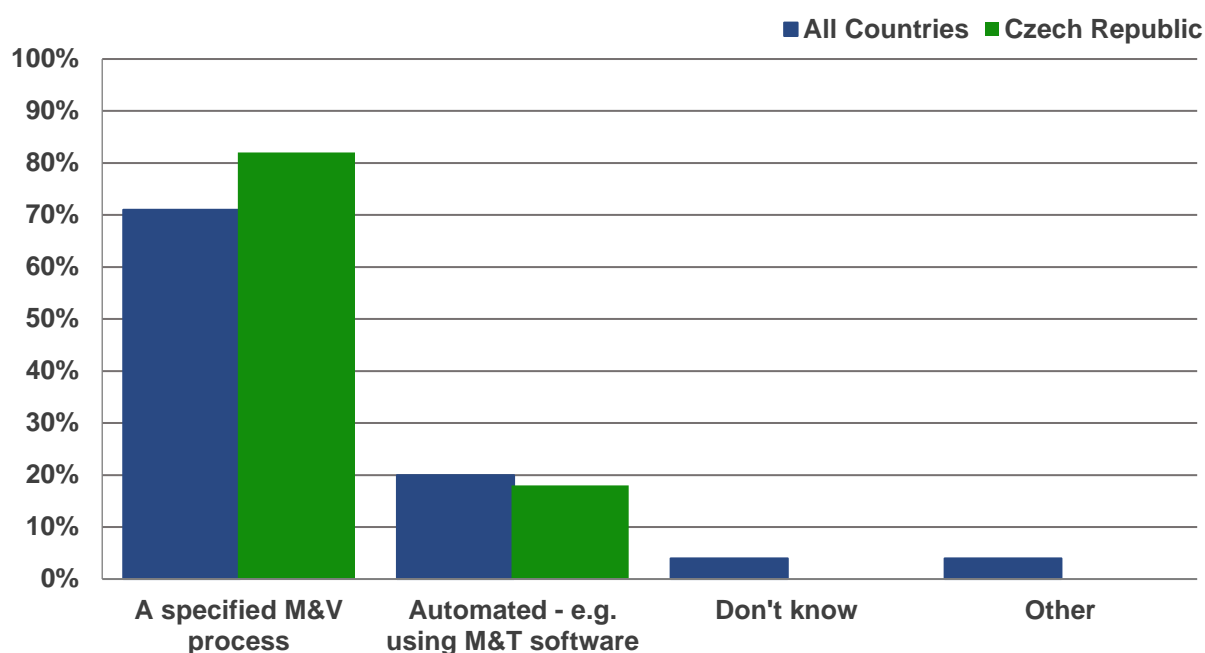


Figure 13 How is the energy savings performance of the EPC projects you are involved with typically measured and quantified? (Percentage share of responses by providers and facilitators Sept 2017)



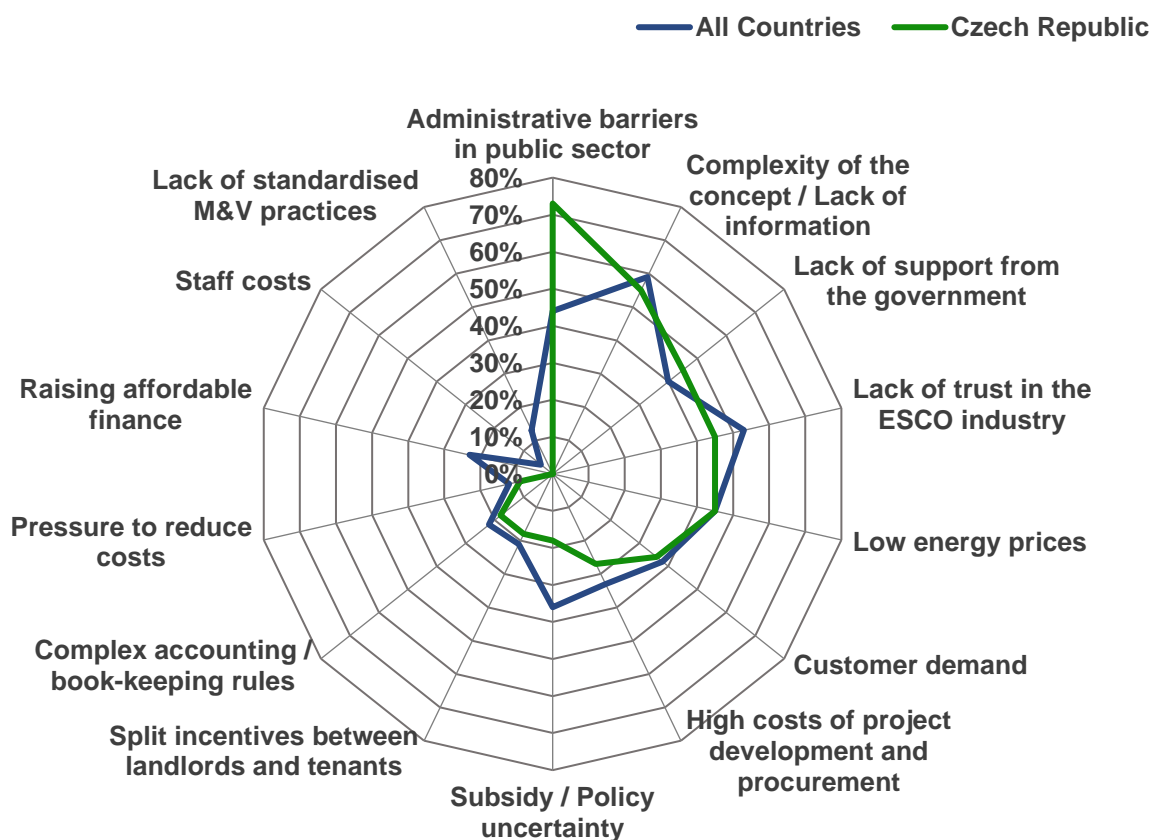
4.6 EPC market barriers

Czech EPC providers and facilitators selected "Administrative barriers in the public sector" and "Complexity of the concept / Lack of information" as the top two barriers to EPC business. These are followed by "Lack of government support", "Lack of trust in the ESCO industry" and "Low energy prices" (45% in each case).

This differs from the picture across All Countries in the survey, where only 44% of respondents selected "Administrative barriers in the public sector" as a main barrier to EPC. This may be explained as the public sector dominating the EPC market in the Czech Republic (see part 4.4 above). Across All Countries, "Lack of trust in the ESCO industry" and "Complexity of the concept / Lack of information" were indicated as the top two barriers to EPC business.

Interestingly, "Raising affordable finance" was not selected by any of the Czech providers or facilitators in comparison to the picture across All Countries, where 22% of respondents selected this barrier. This confirms the perception on the Czech market that well-prepared EPC projects do not have a problem finding financing.

Figure 14 What are the main barriers to EPC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



Note: 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

4.6.1 Regulatory and administrative barriers

The ChangeBest project report (Sochor and Szomolányiová 2009) and Transparene project country report (Valentová, Szomolányiová 2013) highlighted the unclear legislation and rules related to EPC discouraging many institutions from taking part. Though since then the APES engaged in a number of activities in cooperation with the MIT to remove these barriers, today public and governmental organisations are still struggling with the complexity of the EPC procurement process. The National Energy Efficiency Action Plan (MIT 2017) states that publicly co-funded organisations may implement EPC projects, but "are frequently concerned about making mistakes when accounting for these projects, as they view this process as the funding of investments from operating costs." The plan establishes a measure to amend the guidance on the preparation and implementation of EPC projects in the public sector. It proposes to support the implementation of EPCs in the public sector with an emphasis on implementation by state contributory organisations and governmental organisational units⁹.

⁹ Contributory organisations are typically facilities owned by municipalities, such as schools or healthcare facilities, and governmental organisation units are all organisations of state administration or institutions

To date no EPC project has been implemented in governmental organisation units due to the administrative and legal barriers which are described in detail by Valentová and Szomolányiová (2013, p.13).

In previous reports (Sochor and Szomolányiová 2009, Valentová and Szomolányiová 2013) lack of governmental support and strategic framework for EPC were perceived as one of the main barriers. Though in the last couple of years EPC has been receiving considerable support from the relevant officials and strategic documents prepared at the MIT, there remains a lack of support on the side of the Ministry of Finance and a majority of governmental administration in EPC implementation. This is combined with a typical lack of capacity and motivation among public sector employees to deal with complex EPC procedures.

4.6.2 Structural barriers

The public sector in the Czech Republic typically creates the issue of **split incentives** among the owner and the user of the buildings when implementing EPC in buildings managed by the state, regions and municipalities. After the energy saving measures have been implemented, the managers of publicly owned facilities have limited access to the achieved savings on the energy bills. Such savings are often taken by the owner – the local government or the state. In such a case, the manager of the site has little motivation to implement an EPC project. Some public organisations are able to retain the benefits of cost savings, but many others are not allowed to do so. It is up to the relevant founder or budget provider to decide whether a part of the savings will be left to that subject during the term of the contract.

Within the education sector, schools do not have direct access to the savings on energy bills, as they are financed from the municipal budget, where the cost savings often are retained. A site manager may solve this problem by appropriate pre-project negotiation, during which the municipality as the school owner agrees to share the cost savings with the school. The split incentive issue is less present in the health sector, as hospitals typically keep the full savings for themselves due to their higher autonomy, as they receive direct financial flows from the insurance companies.

Public sector decision-makers often fear the **complexity of the EPC procurement process** or even claims that the tender evaluation process conflicts with the requirements of the Public Procurement Act. It is seen as easier to defend decisions based predominantly on the lowest price, as is typical for public contracts in the Czech Republic.

Another structural barrier is **lack of trust in the ESCO industry** as reported by 45% of the Czech EPC providers and facilitators. However, all of the three clients of successful EPC projects interviewed by the QualitEE project (September 2017) stated that they almost always trust EPC providers. This supports an idea that experience with high-quality EPC changes the pattern of clients' low trust and thus has the potential to increase client demand.

financed directly from the state budget, including ministries and other administrative bodies, such as social services, police and military facilities, courts and others.

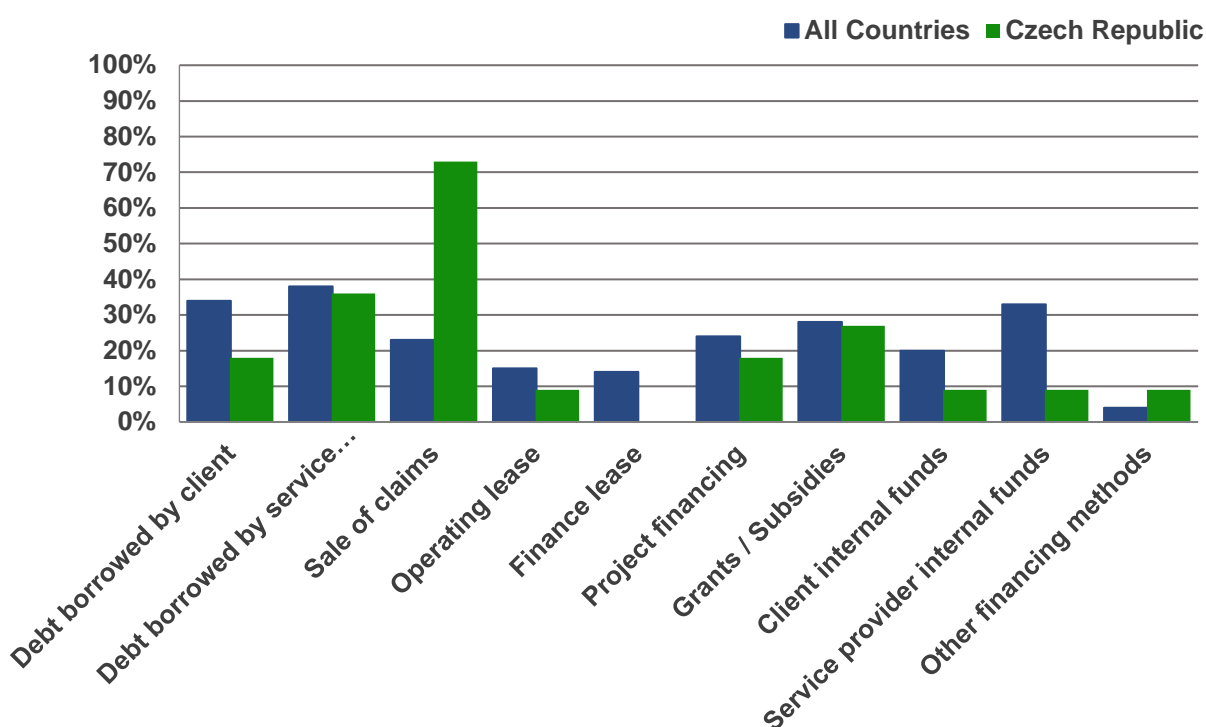
4.7 EPC financing

Whilst a full range of financing options for EPC appears to be in use within the Czech Republic, the vast majority of Czech EPC providers and facilitators (73%) are involved in EPC projects financed by sale of claims – where EPC service payments are sold by the service provider to investors on financial markets.

In stark contrast, sale of claims was cited only by 23% of respondents across All Countries in the survey. This is probably why the Czech Republic is of the few countries in the survey where financing is not regarded as a barrier to EPC project implementation.

However, supplier-arranged debt finance, which was most commonly selected across All Countries (by 38% of respondents), was cited by a similar proportion of Czech respondents (36%) and thus was ranked as the second most common method of EPC financing.

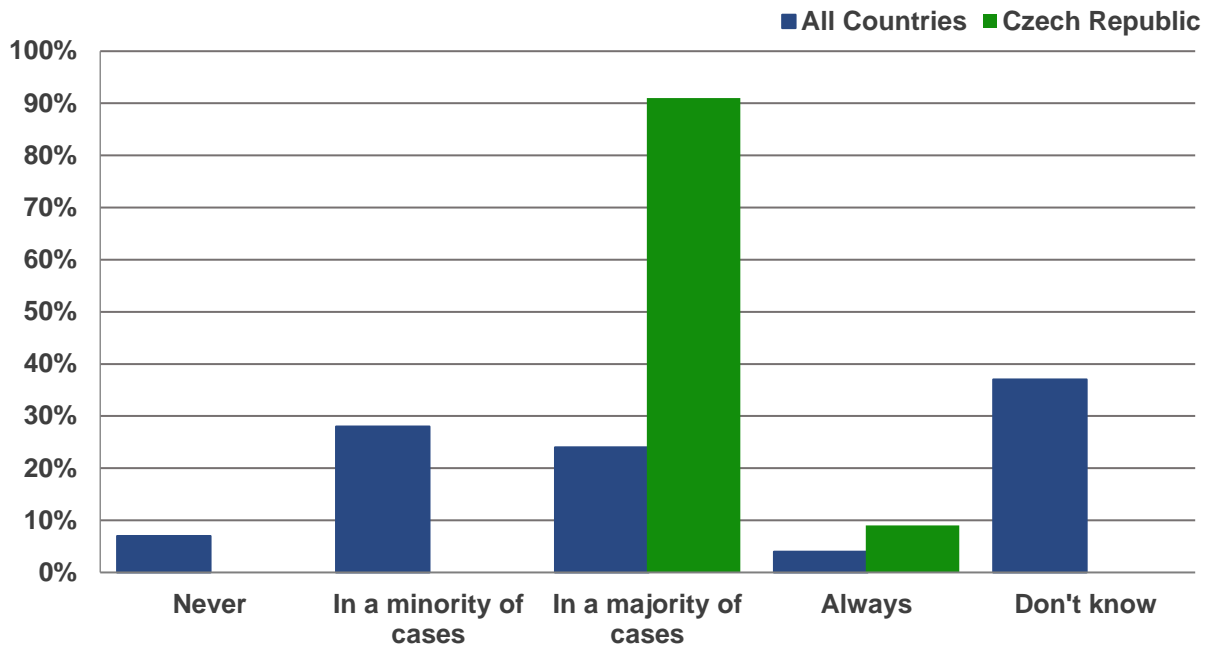
Figure 15 How are the EPC projects you are involved with financed? (Percentage share of responses by providers and facilitators Sept 2017)



Note: 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%.

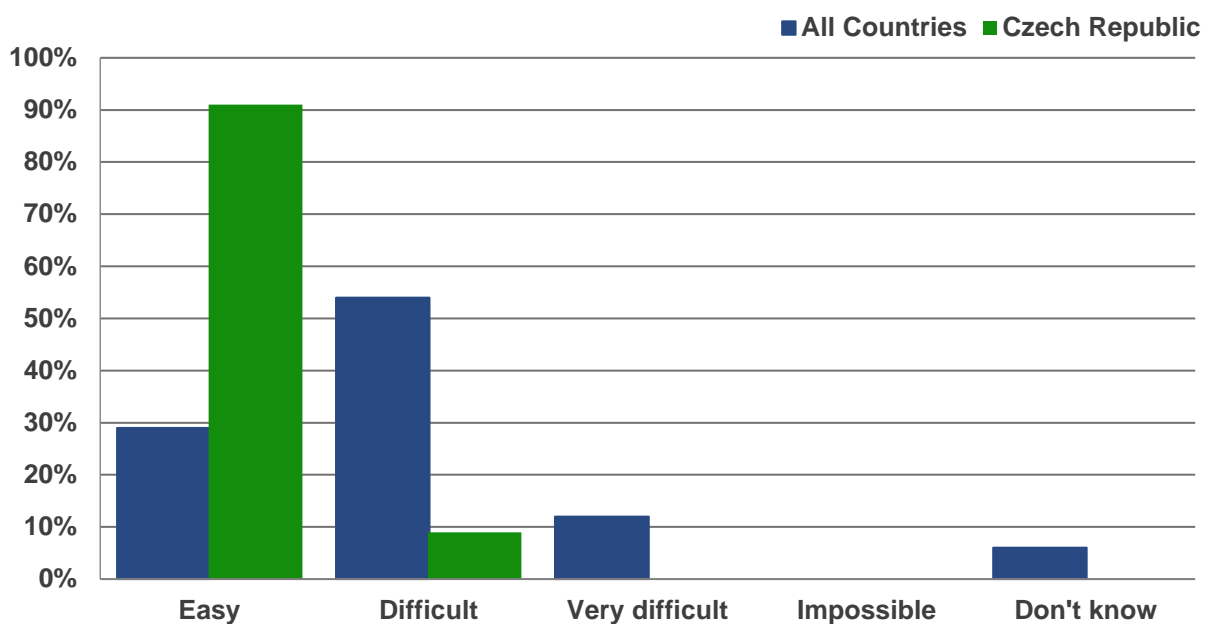
In the Czech Republic, the vast majority of respondents (91%) confirm the sale of claims is generally accepted as the main collateral for EPC projects in a majority of cases. In stark contrast, only 24% of respondents across All Countries indicated sale of claims is accepted in a majority of cases and only 28% in a minority of cases.

Figure 16 From your experiences, is the sale of claims (sale of receivables) accepted as the main collateral for EPC projects? (Percentage share of responses by providers and facilitators Sept 2017)



Obtaining "viable" finance was seen as "easy" by the vast majority of Czech respondents (91%), which is consistent with them denying "raising affordable finance" as a barrier to EPC business. This is again in stark contrast to the picture across All Countries in the survey, where obtaining viable finance was seen as "easy" only by 29% of respondents. The general view of respondents across All Countries is that obtaining viable finance is "difficult" (54%) or "very difficult" (12%).

Figure 17 Do you consider that obtaining viable finance for an EPC project is easy? (Percentage share of responses by providers and facilitators Sept 2017)



4.7.1 ESCO financing

- ✔ In the Czech Republic, the most common practice for EPC providers is **to sell the receivables from EPC projects – so-called "sale of claims"**. This method was used to finance the majority of EPC projects completed since 2005 in the public sector (MIT 2017). The vast majority of Czech EPC providers and facilitators (73%) in the QualitEE survey were involved in EPC projects financed by sale of claims. In addition, two of the interviewed Czech financial institutions who financed a number of EPCs in recent years confirmed that this is the prevailing method of EPC project financing.
- ✔ The typical process for sale of claims in the Czech Republic is described in detail by the NAEPP (MIT 2017):
 - EPC providers sell project receivables almost exclusively to entities holding a Czech National Bank banking licence. The name of the specific financial institution to which a receivable is assigned is usually specified in the EPC contract prior to the signing thereof. Negotiations with the financing institution are completed after the completion of the procurement procedure and announcement of the selected provider (MIT 2017).
 - The assignment of a receivable does not change the customer's status. The sale of a receivable does not change supplier credit into bank credit, and thus the customer's debt service indicator is not influenced. No contractual relationship is established between the customer and the financial institution from either an accounting or legal perspective (MIT 2017).
- ✔ **Debt borrowed by service provider** is the second most used method of financing EPC projects in the Czech Republic, as it was selected as a financing option by 36% of respondents to the survey.
- ✔ Only 9% of Czech respondents to the survey indicated that **EPC providers' own internal funds** were used in projects, suggesting very limited use of this model.

4.7.2 Client financing

- ✔ **Debt borrowed by client** was reported as a method of financing EPC projects only by 18% of EPC providers and facilitators in 2017. This type of financing was used largely in the early days of the Czech EPC market development in the 1990s, before the banks gained experience with the EPC market. In general, municipalities and towns without excessive debts are usually considered as customers with a good rating and are granted loans under very favourable conditions. If the customer is credible for banks, it may also obtain lower interest rates or implement bigger projects than would otherwise be acceptable for the ESCO.
- ✔ **EPC client's own internal funds** were used to finance EPC only by 9% of Czech respondents to the survey, suggesting this model is not frequently used. However, one of the three clients interviewed within the QualitEE project had used this option as he had the internal funds available.

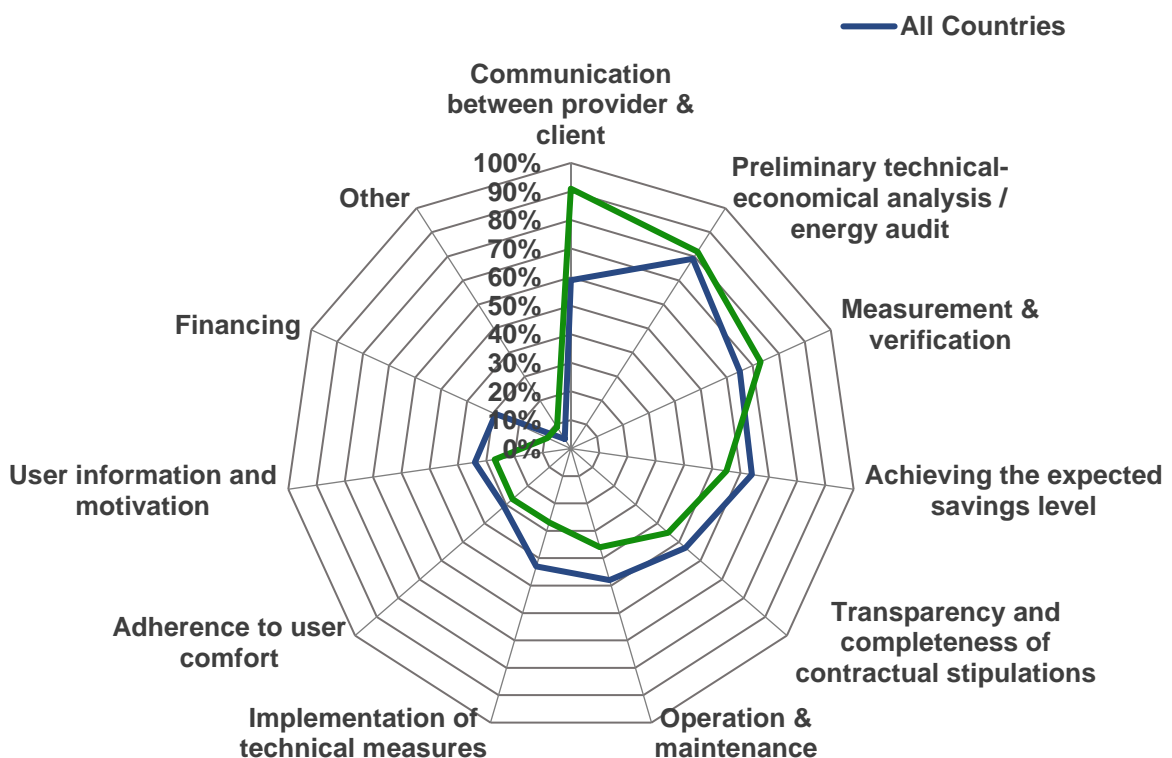
4.8 EPC quality determinants

The majority of Czech respondents agreed that the most important determinants of quality in EPC projects are:

- ✔ Communication between provider and client (91%);
- ✔ Preliminary technical-economical analysis / energy audit (82%);
- ✔ Measurement & verification (73%);
- ✔ Achieving the expected savings level (55%).

Compared to the All Countries dataset, Czech respondents gave much greater importance to communication. Czech Republic had the largest proportion of respondents selecting this quality determinant in comparison to other countries involved in the survey.

Figure 18 What are the most important determinants of quality in EPC projects? (Percentage share of responses by providers and facilitators Sept 2017)



Note: 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%.

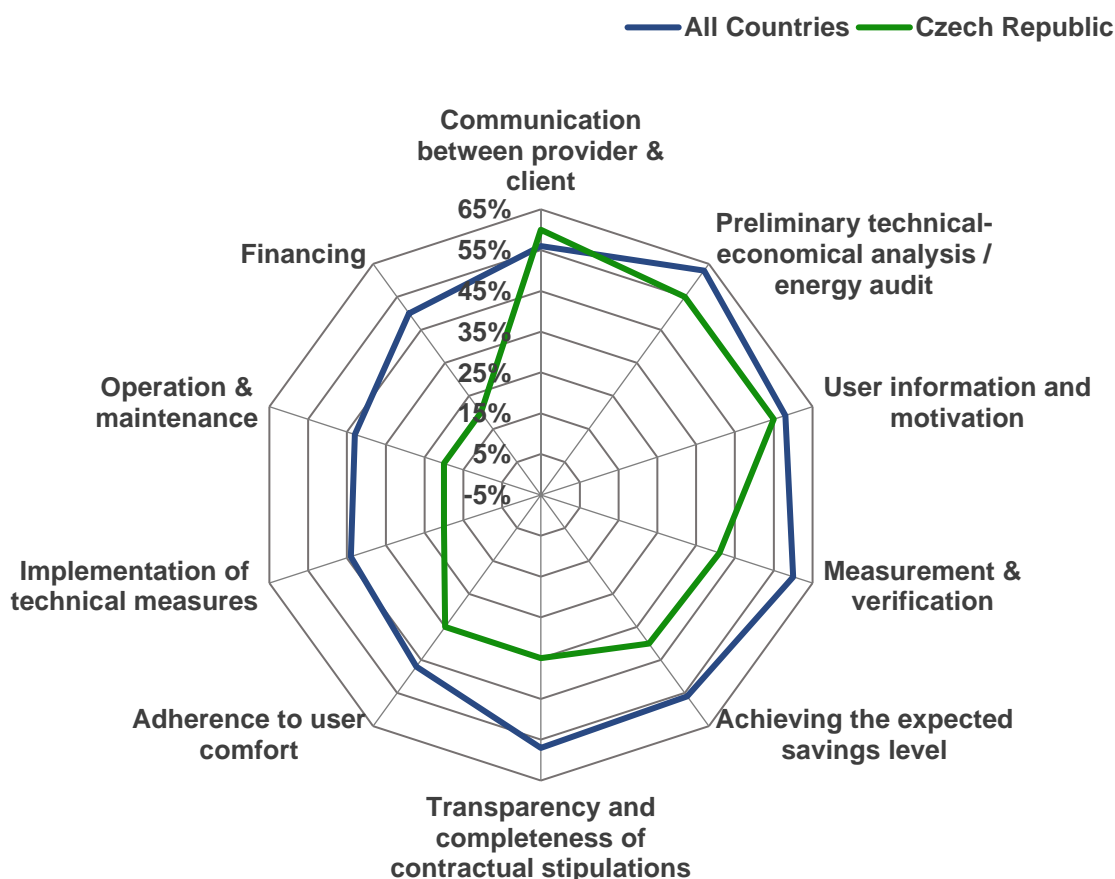
When asked In which areas are quality improvement most needed in EPC project preparation and implementation, the top three areas indicated by Czech respondents were in agreement with the European counterparts. Communication was again assigned the highest level of

importance (60%), followed by preliminary analysis and user information and motivation (55% in each case).

In the areas of “ Measurement & verification” (41%) and “Achieving the expected savings level” (40%) Czech respondents see considerably less urge for improvements, although both areas were assigned high importance in the previous question. In author’s opinion this is signalling the current quality level in these areas is higher than across All Countries.

In contrast to their European counterparts (50%), only 20% of Czech respondents indicated a need of improvement in financing confirming again this area does not need to be a key aspect of a quality assurance scheme for EPC in the Czech Republic.

Figure 19 In which areas are quality improvement most needed in EPC project preparation and implementation? (Indicator based on rating scale as described in note below - Sept 2017)



Note: respondents were asked to rank each determinant using the following options ‘not needed’, ‘needed’, ‘strongly needed’ and ‘don’t know’. An indicator was created by assigning a weighting of 0%, 50% & 100% to ‘not needed’, ‘needed’ & ‘strongly needed’ respectively and dividing by the number of responses. Where ‘don’t know’ was selected this was excluded from the calculation of the indicator.

5 ENERGY SUPPLY CONTRACTING MARKET

5.1 ESC market actors

In the Czech Republic, **ESC providers** are energy service companies offering energy supply contracting as part of their services to clients. Usually they conclude a contract on heat delivery and thus operate energy sources of the client. Most of the time these projects focus on outsourcing and modernisation of the existing equipment.

Currently, the dominant actor on the Czech ESC market is ČEZ Energetické služby, s.r.o., which implements the largest number of ESC projects. A large proportion of them are installations of cogeneration units. ČEZ Energetické služby, s.r.o. was established in 2007 by CEZ, a.s. as its 100 % subsidiary providing comprehensive services in the area of power unit management, public lighting, delivery of gas, water and other services. The company has taken over these activities by virtue of a spin off from Energetika Vítkovice.

There is no list of ESC providers in the Czech Republic or association of providers focused on ESC. Most of the ESC providers offer ESC as one of a number of their services. The association of energy service providers APES focuses on energy performance contracting (EPC). However, almost all APES members who are EPC providers are also able to provide ESC.

Apart from the APES members, there are also other significant ESC providers, such as KOMTERM, a.s. or ITES, s.r.o., who have been operating on the ESC market since early 1990s.

Some ESC providers are also members of the Association for the District Heating of the Czech Republic. The mission of the association is to protect the interests of its members and to promote the development of district heating systems and combined heat and power generation. The association provides professional services to its members and lobby to directly affect the state management bodies and institutions linked to district heating, professionals and the general public, and especially the consumers of the provided services and supplied energy. The association currently has 67 members, who offer operation of boiler houses, including investments into modernisation, operation of boiler houses, operation of small district heating systems, external operation of large heating plants and systems. However, it must be noted that a large proportion of them do not provide either ESC or EES as there is no measurement of energy efficiency improvement.

ESC facilitators are sometimes often approached by the public sector for support when dealing with a much stronger opponent – the energy service companies. Private sector seek advice rarely.

In special cases, ESC providers cooperate with independent **consultants and consulting companies** to obtain preliminary analyses of energy efficiency improvement measures.

5.2 ESC market developments

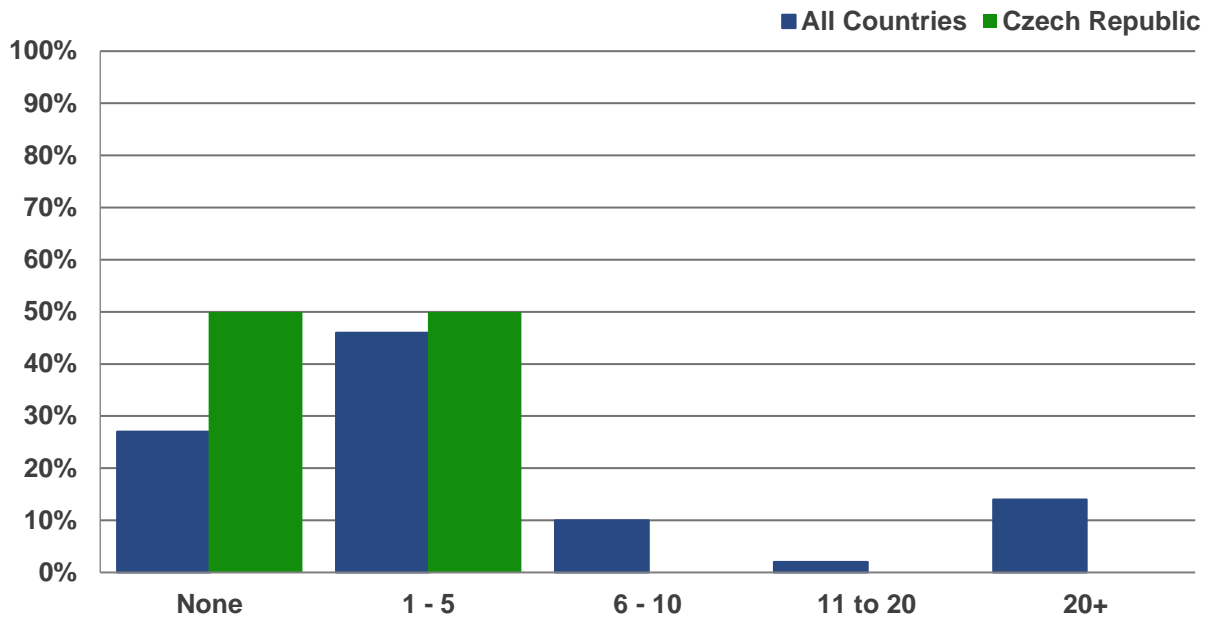
The ESC market was started in the Czech Republic by Harpen ČR, s.r.o., which carried out a vast amount of ESC projects during the 1990s. As a result of their success, other competitors adopted their business model. Most of these companies were established as part of predominantly foreign companies, while some emerged from small companies set up in the Czech Republic. Currently, the dominant actor on the Czech ESC market is ČEZ Energetické služby, s.r.o., which implements the largest number of ESC projects, most of which are installations of cogeneration units.

Further conclusions refer to the results of the QualitEE survey (2017). It should be noted that there were only four Czech respondents (two ESC providers and two ESC facilitators) to questions relating to Energy Supply Contracting. Therefore, the results should be treated with some caution:

- ✔ The survey reported that typical ESC contracts in the Czech Republic are held with private sector clients, have a capital outlay below EUR 500,000, a contract length of 5 – 10 years and use a guaranteed savings model.
- ✔ Czech respondents identified the following top three barriers to the ESC market: subsidy an policy uncertainty, lack of government support and administrative barriers in the public sector.
- ✔ Czech respondents reported quality improvement is needed most in preliminary technical-economical analysis and energy audit. While achieving savings on the supply side was of critical importance as a quality determinant, majority of respondents did not indicate a need for quality improvement in this area.
- ✔ The following text provides full details and figures relating to the conclusions drawn above.

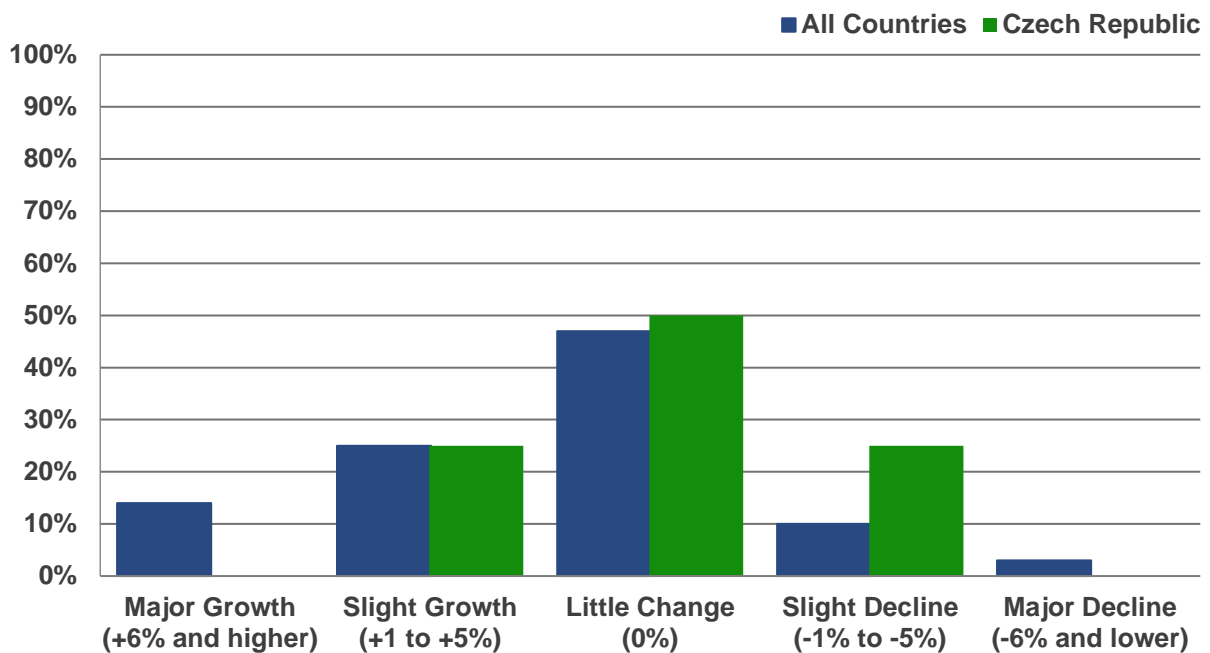
According to the QualitEE survey (September 2017), half of Czech respondents – ESC providers and facilitators – became involved in between one and five EPC projects in the last 12 months. This is in line with the picture across All Countries, where the most respondents (46%) became involved in 1 – 5 ESC projects in the last 12 months. The second half of Czech respondents who claimed to operate on the ESC market did not become involved in any new projects in the last 12 months. This can be explained by the fact that the two respondents with no new projects representing half of respondents do not focus their business on the ESC model.

Figure 20 How many ESC projects (that have reached contract signature) has your organisation initiated / become involved with in the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



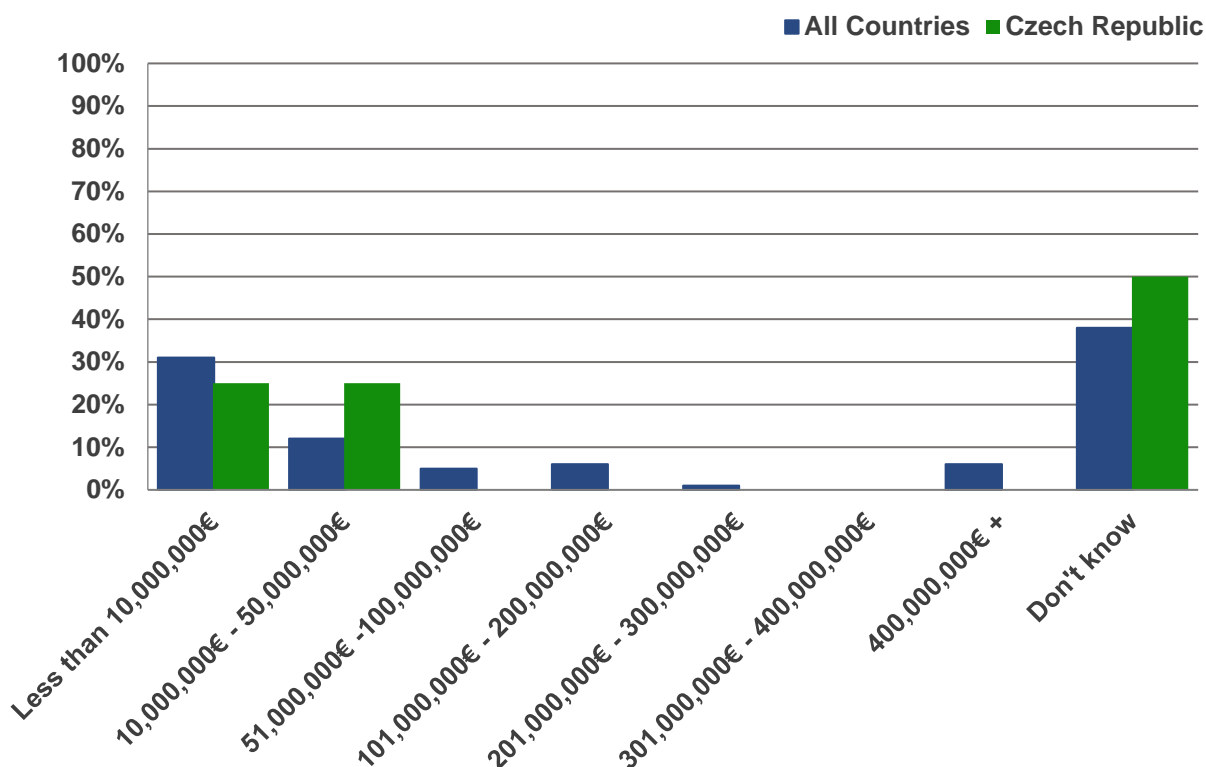
"Little change" was the most selected option to describe the development of ESC orders from respondents in the Czech Republic (50%) showing very similar results to the All Countries dataset. "Slight growth" and "slight decline" were each indicated by a quarter of respondents.

Figure 21 In the last 12 months your ESC orders have seen: (Percentage share of responses by providers and facilitators Sept 2017)



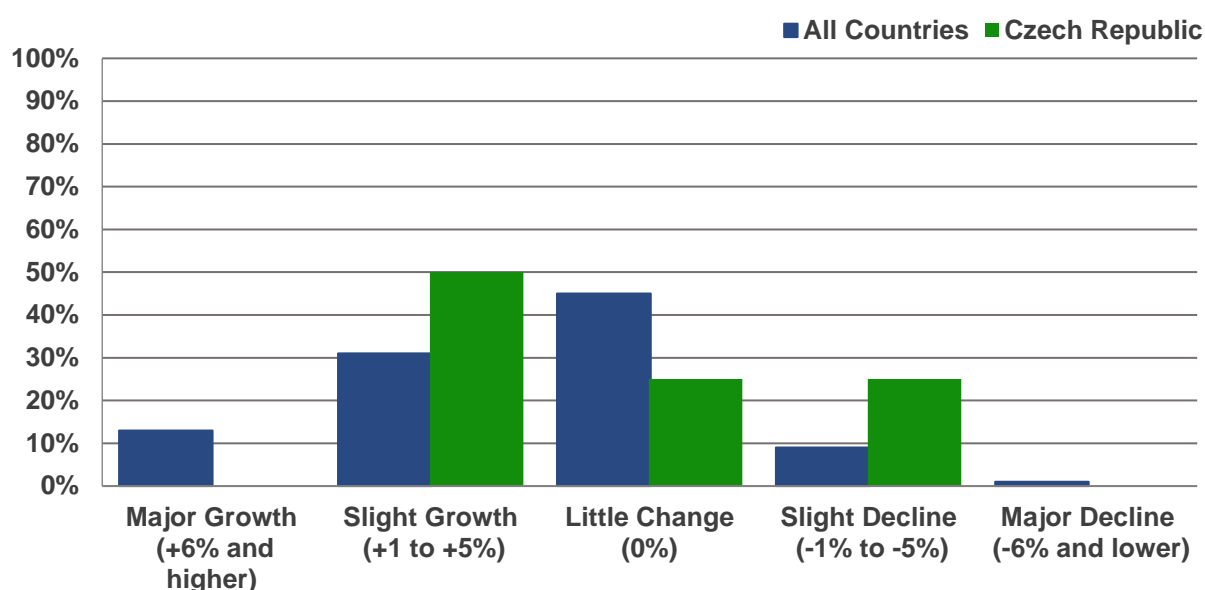
Half of Czech respondents were not willing to speculate on the ESC market size, which is not surprising, as there are no definitive sources of data for this information. Those two respondents who provided estimates agreed that the ESC market size was below EUR 50,000,000. Opinion is split when it comes to a more precise estimate. While one respondent estimated market volume to be below EUR 10,000,000, the other provided a more optimistic estimate of between EUR 10,000,000 and EUR 50,000,000.

Figure 22 How much revenue do you think the ESC market in your country generated in 2016? (Percentage share of responses by providers and facilitators Sept 2017)



When asked to assess overall ESC market growth, half of Czech respondents estimated that the market experienced slight growth. The rest estimated either stagnation or a slight decline (25% each). This differs from the general picture across All Countries in the survey, where most respondents (45%) estimated that the market was stagnating.

Figure 23 Over the last 12 months, the market for ESC in your country has seen: (Percentage share of responses by providers and facilitators Sept 2017)





5.3 ESC business models

In the case of Energy Supply Contracting (ESC), efficient supply of useful energy such as heat, steam or electricity is contracted, measured and delivered in physical units (such as MWh), and therefore resembles district heating or cogeneration supply contracts.

The typical ESC provider in the Czech Republic takes over the planning and construction of energy production and distribution systems or systems for measurement and control technology, operation of systems and the supply including maintenance during the contracted period and the financing. The service provider may also take over the purchase of fuel and electricity. If heat delivery is part of the contract, ESC providers usually rent the energy sources from the client to provide for heat delivery.

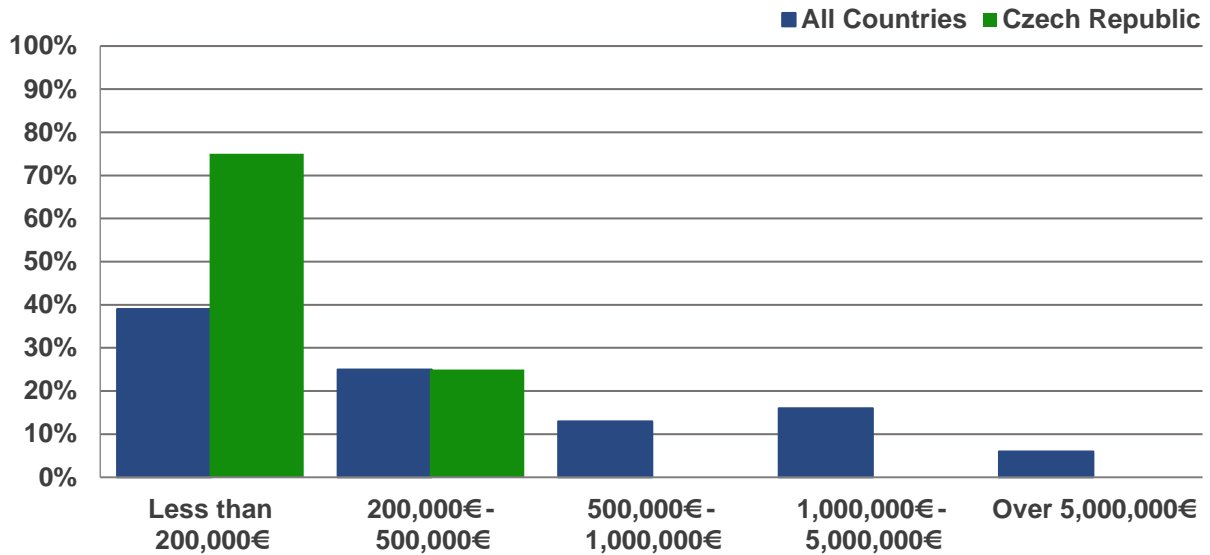
ESC providers usually apply energy saving measures only on the energy supply side (boilers efficiency, etc.), without assuming any risk in case the expected efficiency improvement is not reached.

There are a number of ways in which the client pays for ESC services, but in the Czech Republic the price most commonly consists of the following two parts:

-  The fixed part of the price covers the whole investment. Usually the contract stipulates a minimum threshold volume for the offtake. When the client's offtake is below this threshold, it has to pay a higher fixed unit fee.
-  The variable part of the price covers operating costs, including fuel costs.

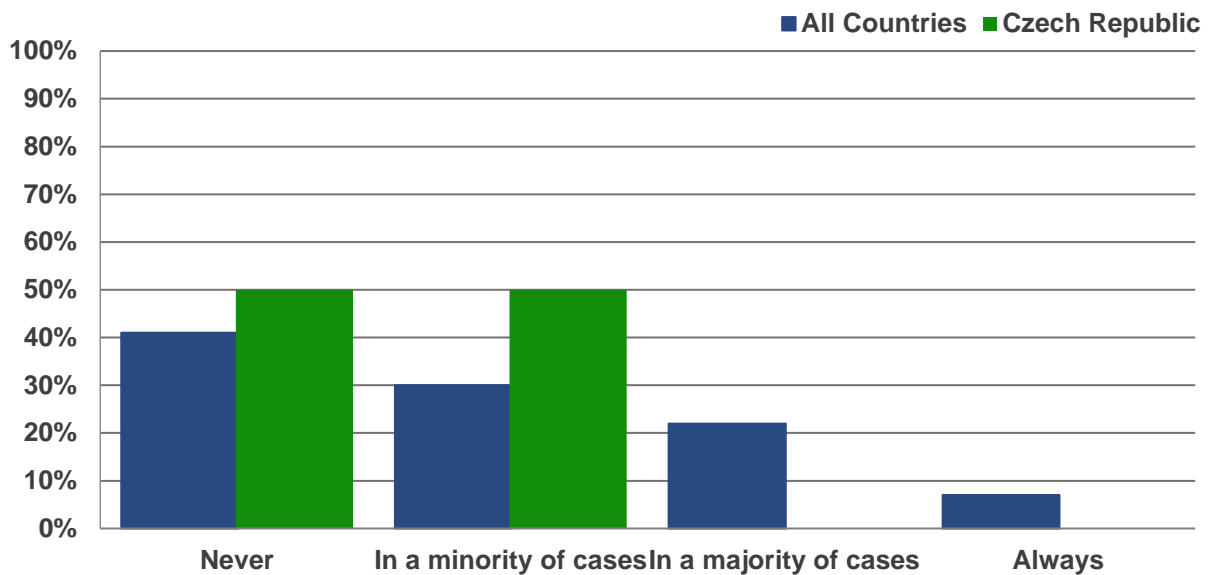
The view in the Czech Republic and across All Countries in the survey is that ESC projects tend to have a lower value than EPC projects. Czech respondents agreed the most common overall value of the ESC projects they are involved in is below EUR 500,000.

Figure 24 What is the most common overall value (investment outlay) of the ESC projects you are involved in? (Percentage share of responses by providers and facilitators Sept 2017)



Czech respondents agreed that it is not typical for payments for energy delivered from generation equipment to be combined with payments per unit of energy saved from energy efficiency under the bracket of ESC. Half of them had such a combination in the projects they are involved in only in a minority of cases and the other half had no experience with such an arrangement.

Figure 25 In the ESC projects you are involved in, were payments per unit of energy delivered in combination with payments per unit of energy saved (from installed energy efficiency measures)? (Percentage share of responses by providers and facilitators Sept 2017)

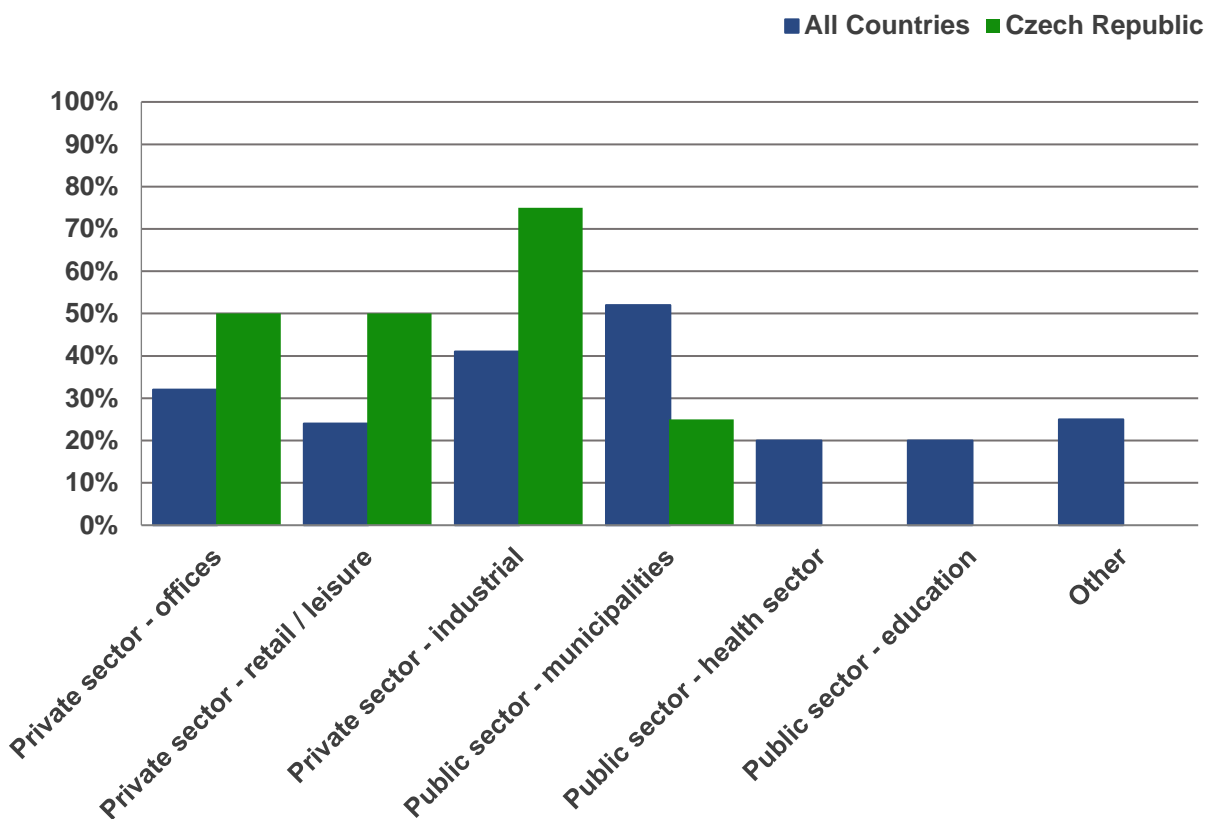


5.4 ESC market sectors

ESC clients can be found both in the public and private sector. Harpen, the company that started the market, focused mostly on public clients. This sector remains key area for ESC business, with most projects implemented in large public buildings (municipalities, health and education sector). ESC providers also operate in the area of energy production, i.e. power and heat supply, usually for larger territories such as municipalities and communities.

There is a higher share of ESC projects in the private sector (vs. public sector] than for EPC projects. The ESC providers and facilitators indicated that most of their ESC projects have been implemented for private clients. Three quarters of Czech respondents reported ESC projects in the industrial sector, which is a considerably higher proportion than across All Countries. However, these results need to be treated with caution, as only four respondents answered this question. As there is no publically available data on the ESC projects in the industrial sector, it is hard to assess the overall volume of their contracts.

Figure 26 Which sectors do your ESC clients generally come from?



Note: 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%.

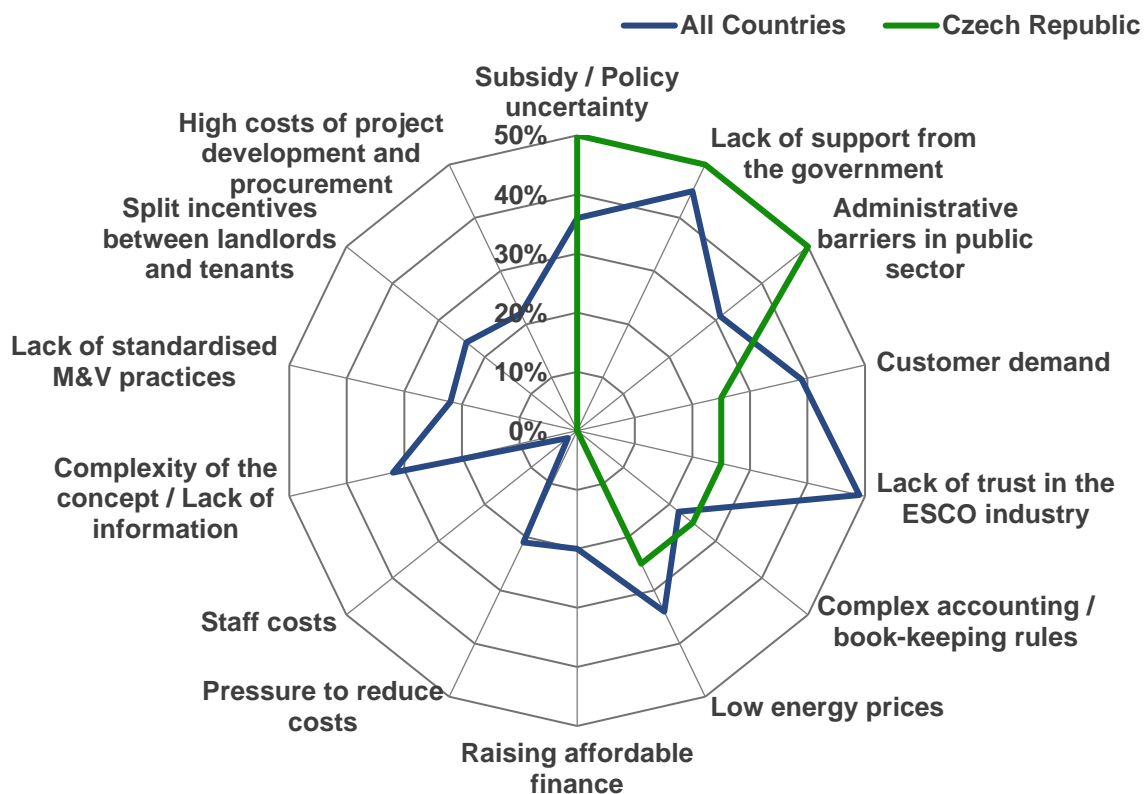
5.5 ESC market barriers

Czech ESC providers and facilitators identified the following top three barriers to the ESC market in the QualitEE survey, each selected by half of respondents: subsidy and policy uncertainty; lack of government support and administrative barriers in the public sector.

In contrast to the picture on the EPC market, "Lack of trust in the ESCO industry" was perceived as a barrier only by a quarter of respondents. This was also significantly lower than across All Countries. Customer demand and complex accounting rules were also indicated as barriers by a quarter of Czech respondents.

Existing regulatory and administrative and structural barriers on the ESC market are mostly similar to those described in part 0. However, the process of preparing and implementing ESC projects is usually less complex and does not include energy saving guarantee, so these projects are struggling less with complex administrative and accounting rules in the public sector. Identically to the EPC market, financing was not indicated as a barrier by any of the respondents.

Figure 27 What are the main barriers to the ESC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)

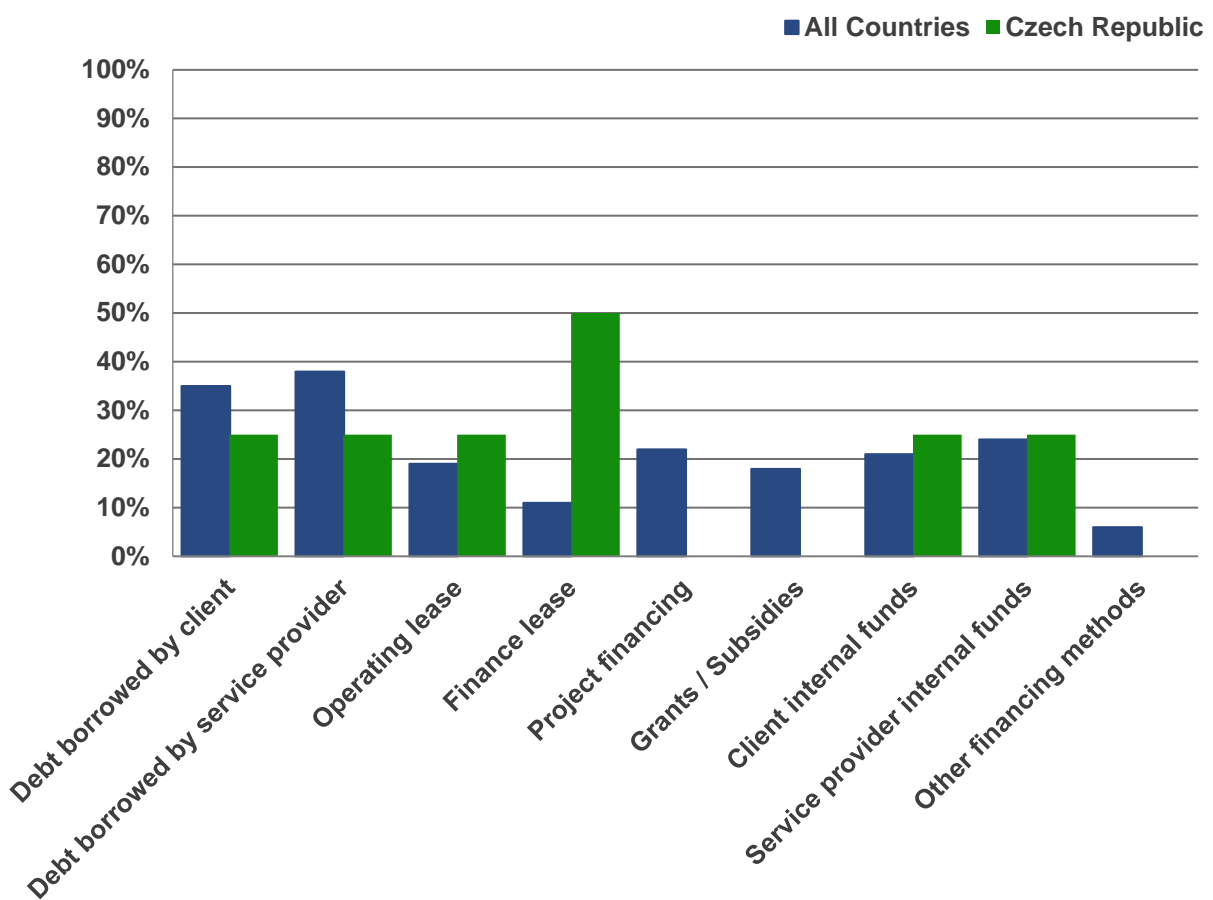


Note: Respondents may have selected multiple answers. The chart shows the proportion of respondents selecting each answer out of overall respondents to the question. Results therefore do not sum to 100%.

5.6 ESC financing

Half of Czech respondents – ESC providers and facilitators - reported that the main source of financing of ESC projects is finance lease. However, the choice of financing is more diverse and also includes client loans or internal funds, provider loans or internal funds as well as operating lease.

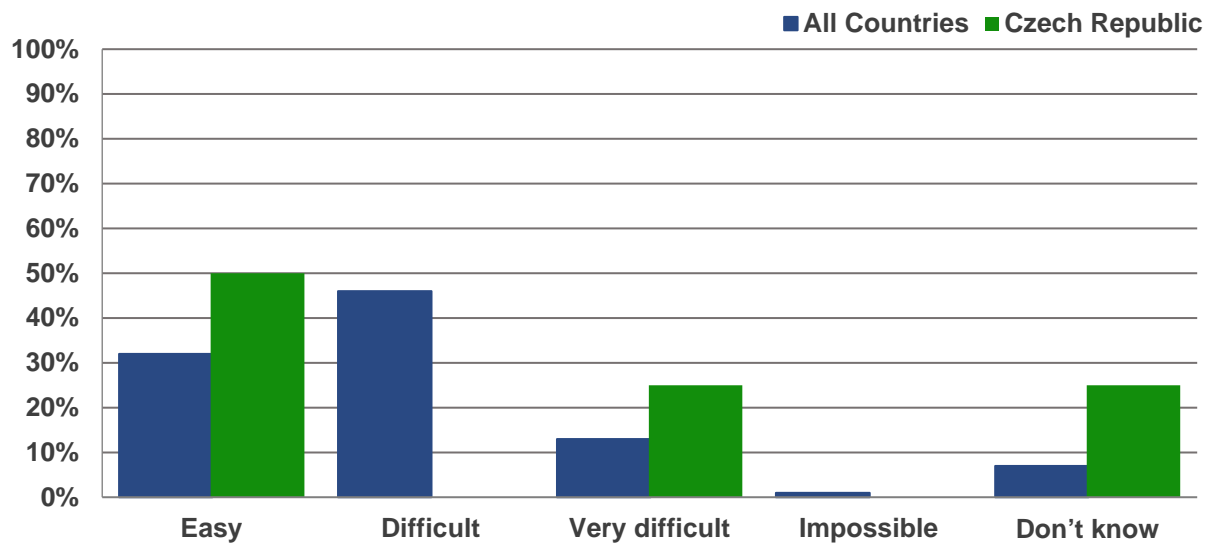
Figure 28 How are the ESC projects you are involved with financed? (Percentage share of responses by providers and facilitators Sept 2017)



Note: 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%.

Most Czech respondents (50%) indicated that obtaining financing for ESC projects is easy. Another quarter of respondents find it very difficult to obtain financing and the rest did not have an opinion on this matter, indicating limited experience with ESC projects. The results of the survey again signal that financing is less of an issue on the Czech EPC and ESC markets than across All Countries in the survey.

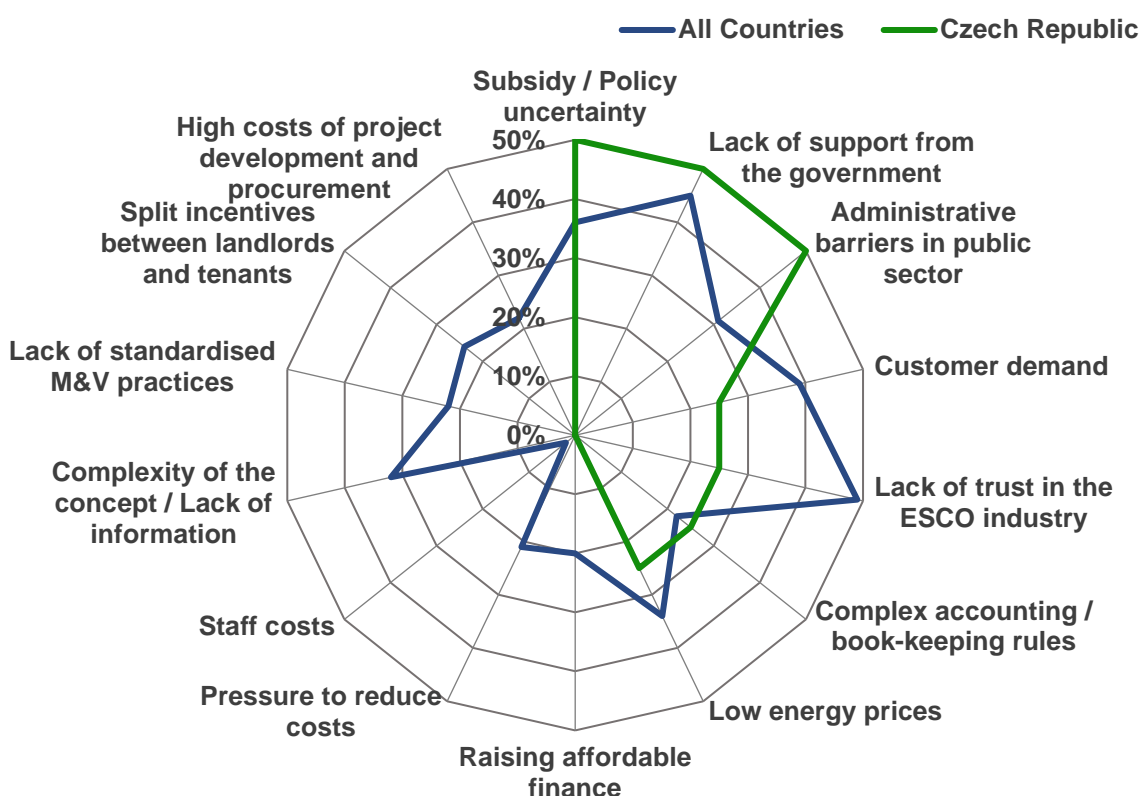
Figure 29 Overall, do you consider that obtaining viable finance for an ESC project is:
 (Percentage share of responses by providers and facilitators Sept 2017)



5.7 ESC quality determinants

There was broad agreement amongst Czech respondents that the most important determinants of quality in ESC projects are "Achieving savings on the supply side" selected unanimously and "Preliminary technical-economic analysis / energy audit" indicated by three-quarters of respondents. On the other hand, adherence to user comfort and operation and maintenance are not seen as ESC quality determinants, in contrast to the opinions across All Countries in the survey.

Figure 30 In your opinion what are the most important determinants of quality in ESC projects? (Percentage share of responses by providers and facilitators Sept 2017)








Note: 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%.

6 RECOMMENDATIONS TO SUPPORT MARKET DEVELOPMENTS

This chapter proposes a set of recommended actions to overcome the barriers identified on the Czech EES market. The recommendations are based on the main drivers of the market identified by the QualitEE survey among the market stakeholders as well as on the knowledge of success factors which have helped to develop the market until now.

Czech EPC providers and facilitators identified the following main drivers of the EPC market in the QualitEE survey:

-  Pressure to reduce costs (82% of respondents);
-  Limited budgets in public sector (64%);
-  Energy savings guarantee (64%);
-  External expertise / turnkey services (55%);
-  Financing provided by service provider (45%).

Whilst all the above-listed drivers were also selected as top drivers by respondents across All Countries in the survey, a much greater number of Czech respondents agree with the top two drivers – pressure to reduce costs and limited budgets in public sector (Figure 31). Financing provided by service provider was selected by a significantly larger proportion of Czech respondents, which can be explained by the fact that the typical Czech EPC provider usually arranges financing for the client (by sale of claims).

Pressure to reduce costs remains the top market driver also in the case of ESC, with even higher agreement by all respondents in the survey (Figure 32). It is followed by energy savings guarantee, which was selected by half of respondents. These two drivers were selected by a much higher proportion of respondents than across All Countries.

Figure 31 What are the main drivers of the EPC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)

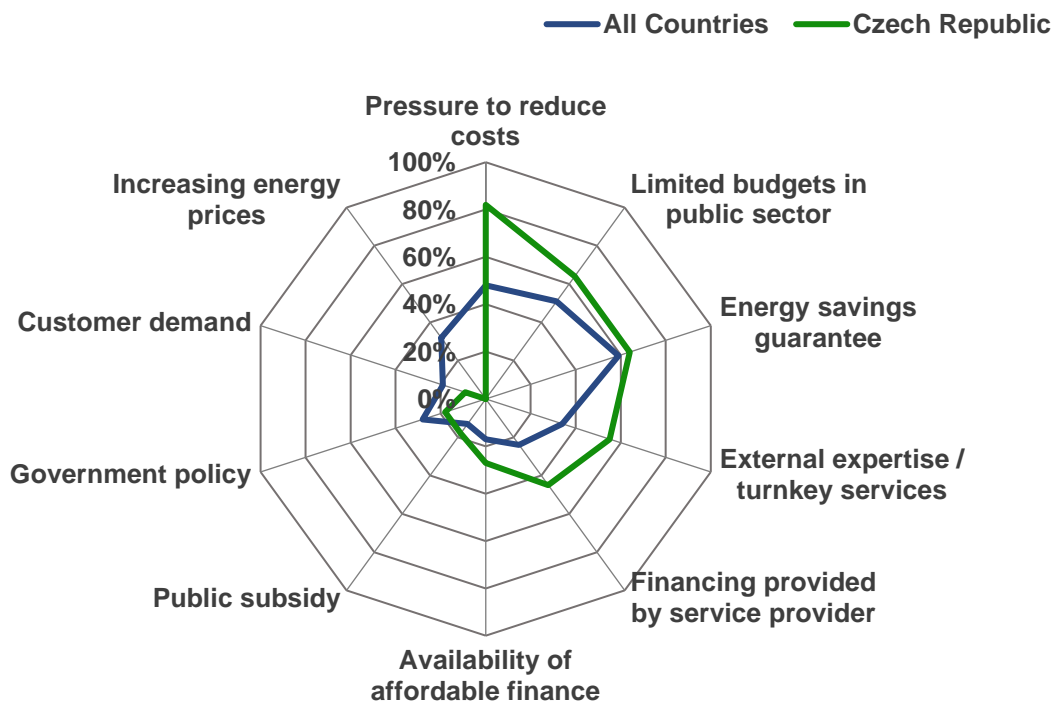
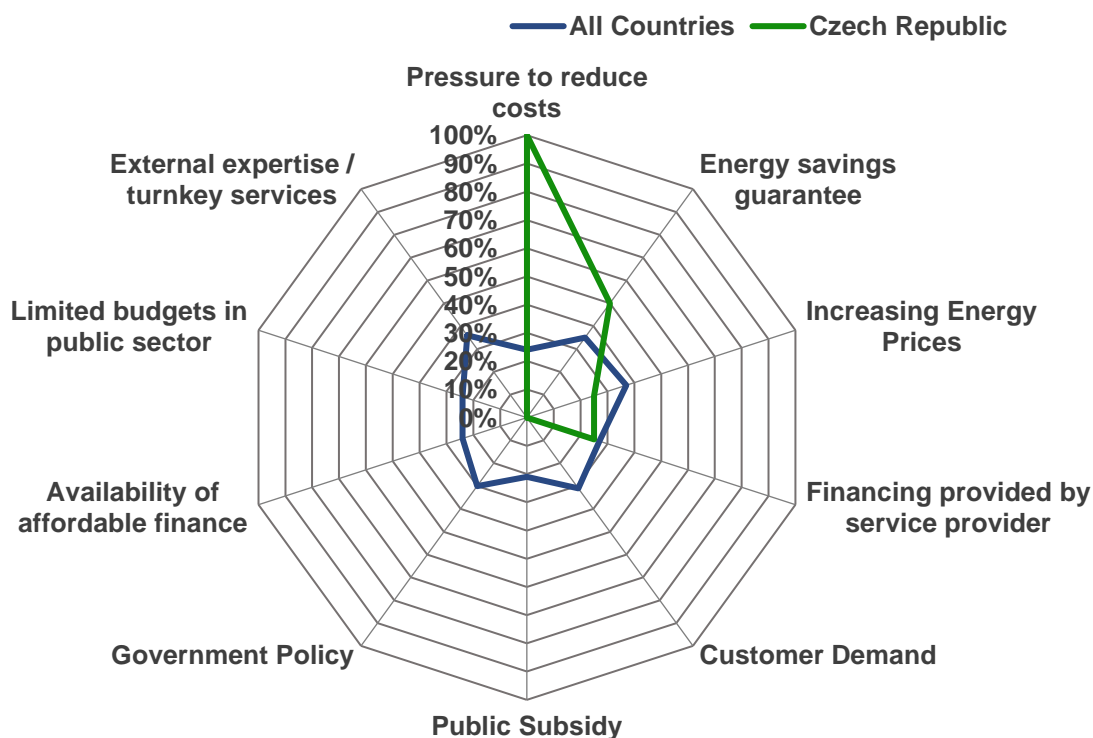


Figure 32 What are the main drivers of the ESC business based on the activities of the last 12 months? (Percentage share of responses by providers and facilitators Sept 2017)



Note: 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

The activities listed in the text below are meant to help overcome the identified barriers to EPC and ESC market development in the Czech Republic. The barriers are described in parts 4.6 and 5.5 of this report and are summarised in Table 1 below. All barriers selected by at least a third of respondents have been included in the table.

The proposed actions to be taken are listed in Table 2 below. They relate to individual stakeholders below; however, as the activities interrelate with each other, cooperation among all stakeholders is needed.

Table 1: Overview of key EES market barriers

	Market barrier	EES
1	Administrative barriers in public sector	EPC, ESC
2	Complexity of the concept / Lack of information	EPC
3	Lack of government support	EPC, ESC
4	Lack of trust in the ESCO industry	EPC
5	Low energy prices	EPC
6	Customer demand	EPC, ESC
7	Subsidy / Policy uncertainty	EPC, ESC

Table 2: Overview of actions to overcome market barriers

Barriers	Actions	Who should act	Target groups	Description
1	Removal of administrative barriers	Government	Clients in the public sector	Official guidance on preparation and implementation of EPC projects in the public sector to be amended as planned in NEEAP. Both public contributory organisations and organisational units of the state should be given clear guidance on how to implement EPC projects in compliance with all legal and regulatory requirements. Legal barriers removed for organisational units of the state.
4,6	Certification of EES projects and EES providers	MIT, APES, EES providers	EES providers, clients	To provide quality assurance for the clients to distinguish good quality projects and to set quality benchmarks for existing and new EES providers
1,2, 3, 4, 6	Seminars, conferences, roundtables	EES facilitators, EES providers, APES	EES clients, decision makers, financial institutions, experts, media	Information on the possibilities and benefits of the EES and EPC in particular, education on how to prepare and implement EES project including procurement procedure
1,4	Training for new EPC providers	APES, EPC facilitators	New EPC providers	The goal is to sustain the high quality of EPC projects and support EPC market growth
1,2,4,6	Implementation of the European Code of Conduct for EPC	APES, EPC providers, EPC facilitators	EPC providers, clients	The goal is to promote the implementation of a basic set of values and principles that are considered fundamental for the successful, professional and transparent implementation of EPC
1,2,4,6	Promotion of best practices in EPC and ESC	APES, EES providers, facilitators MIT	Potential clients, experts, media	This activity is an integral part of other dissemination activities and should be done in cooperation with the MIT and its Reasonable Energy Savings programme
3,7	Discussions, workshops, conferences and networking	APES, EES providers and facilitators, MIT	Decision-makers (e.g. MIT, Ministry of Finance, etc.)	To promote EPC as one of the governmental strategic goals in energy policy with practical impacts on the removal of administrative barriers and enlarging fund allocation to subsidies to be combined with EPC and ESC projects
1,2	Subsidies, grants	Government	Clients	Continue in support of soft measures (information, education, studies) and supporting combination of EPC with investment subsidies

6.1.1 Regulation and standardisation

Removal of administrative barriers in the public sector

As administrative barriers in the public sector constitute a top barrier for the EPC market, it is essential that governmental institutions cooperate on the removal of these barriers. In the last couple of years, the MIT has made great efforts to remove such barriers; however, higher motivation on the part of other responsible ministries is crucial to bring these efforts to fruition. These efforts should be continued and the following actions should be implemented:

- ✔ Official guidance on preparation and implementation of EPC projects in the public sector to be updated according to the new legislation and amended as planned in NEEAP (MIT 2017).
- ✔ Both public contributory organisations and organisational units of the state should be given clear guidance on how to implement EPC projects in compliance with all legal and regulatory requirements. Legal barriers removed for organisational units of the state.

EES certification systems

One way to generate greater trust in the ESCO industry and hence increased demand on the part of clients is quality improvement. This can be achieved by means of standardisation and certification of the EES and EES providers. The need to introduce certification of energy service providers also results from the Energy Efficiency Directive 2012/27/EU of the European Parliament and of the Council.

Certification system for EES services and providers should be implemented to provide quality assurance for the clients to distinguish good quality projects and to set quality benchmarks for existing and new EPC providers. Obtaining certification is expected to provide ESCO with a competitive advantage on the market.

See part 7.1.3. for more information on the ongoing and planned activities in this area.

6.1.2 Financial instruments

Although financing is not a barrier to the EES market in the Czech Republic, providing subsidies to some parts of the process of EES project preparation can outweigh other existing barriers, in particular administrative barriers in the public sector, and the complexity of EPC project preparation.

Subsidies to cover investment costs should be granted only to measures that would not normally be included in an EPC project due to the long payback period. Such subsidised measures can be combined with EPC by implementing so-called **CombinES Comprehensive**

Renovation¹⁰. It is a special case of comprehensive renovation where the thermal envelope part of the renovation (including building envelope insulation and substitution of fixtures) is subsidised and the technology part of the renovation (including interventions in heating, cooling, domestic hot water and ventilation systems) is implemented by applying the Energy Performance Contracting (EPC) model. The main advantage of this approach is that both types of measures can be inter-optimised within one renovation. This leads to optimal energy savings under the given volume of investment costs. By implementing such a combination, higher overall energy savings can be achieved per facility and subsidies also increase the clients' motivation to undergo the complex EPC procedures.

The EFEKT 2 Programme currently supports the drawing up of preliminary analyses to select buildings/facilities feasible for EPC project implementation and supports tender dossier preparation and co-financing of investment measures in technology renovation with long payback periods to be added to EPC projects.

In addition, the Operational Programme Environment (OPE) offers preferential points in the evaluation of energy efficiency projects if implemented by the EPC method.

It is proposed to continue to support EES by subsidising soft measures (information, education and preliminary analyses) through the EFEKT 2 Programme and by promoting and allowing for a combination of financing from investment subsidies (e.g. for envelope renovation) and EPC projects. It is recommendable to enlarge the funds allocated to such subsidies in the future.

6.1.3 Information dissemination, education and networking

To tackle the second-most-cited barrier – Complexity of the concept / Lack of information – **continuous promotional and information activities** should be implemented while tailored to the particular needs of various target groups as proposed below.

Policy makers

- ✔ Policy makers are an important target group that should provide a regulatory framework for EPC market development.
- ✔ The key message that should be passed on is the advantages of turnkey EPC service with saving guarantee and potential of EPC projects for the public and private sector as well as the obligations stemming from the Energy Efficiency Directive that the Czech Republic has to comply with.
- ✔ The main means of communication should be seminars, roundtables and position papers.

¹⁰ http://www.central2013.eu/fileadmin/user_upload/Downloads/outputlib/CombinES_6-3-1_Master_CombiningEPC_Subsidies.pdf

Public organisations

The main target groups among public organisations are municipalities, regions and national governmental organisations, such as the Financial Administration, Supreme Audit Office, internal auditors at ministries and other organisations.

- ✔ The aim is to build trust in the EPC among these organisations, who are mostly potential clients of EPC or are important persons for permitting and authorising EPC projects. The focus of the information activities should therefore be on the core principles and benefits of EPC projects, practical information on the organisation of procurement and implementation of EPC projects and good practice examples.
- ✔ The main means of communication have proven to be discussion seminars, conferences, examples of good practice and brochures.

7 CERTIFICATION OF ENERGY EFFICIENCY SERVICES

7.1.1 General framework for certification of products and services

European framework

In the area of product certification, **accreditation body** accredits certification bodies who **certify the quality of a product**. The word “product” is used in its widest sense, and includes processes and services. The certification of such a product is a means of providing assurance that the product in question conforms to standards and/or other normative documents. Certification bodies providing product certification issue product certificates or licences to organisations.

In the EU, requirements for accreditation are set in Regulation 765/2008 of the European Parliament and of the Council of 9 July 2008 laying down the requirements for accreditation and supervision over the market concerning the marketing of products. The regulation promotes a uniformly rigorous approach to accreditation across EU countries. EU Member States shall not maintain more than one national accreditation body (NAB) and shall ensure that it is organised in such a way as to safeguard the objectivity and impartiality of its activities.

The accreditation system of the Czech Republic

The Accreditation System of the Czech Republic – a set of processes, procedures and rules for obtaining accreditation from the relevant authoritative body – is mainly regulated by Regulation (EC) No. 765/2008 and Act No. 22/1997, on technical requirements for products (the Act on Technical Requirements).

The **national accreditation body** of the Czech Republic is the **Czech Accreditation Institute (CAI)** under the authority of the Ministry of Industry and Trade (MIT) and notification to the European Commission (EC). The CAI has developed an accreditation system, in compliance with international requirements and rules established by EC and European association European Cooperation for Accreditation (EA), which seeks to achieve a system comparable with those used in EU and EFTA countries.

The implementation of accreditation and assessment of the fulfilment of accreditation requirements is governed by the Act on Technical Requirements and the Administrative Code (Act No. 500/2004).

The CAI will grant accreditation after the subject demonstrates by means of a conformity assessment under the conditions set by law that **the accreditation requirements for the accreditation that it is applying for have been met**. The accreditation requirements must be met for the duration of the validity of the granted accreditation.

The document proving that accreditation was granted is the **accreditation certificate**, which is used to demonstrate the professional competence and impartiality of subjects providing conformity assessment services.

The CAI operate accreditation of, among others, the bodies certifying products according to ČSN EN ISO/IEC 17065:2013 and bodies performing audit and certification of the management systems according to ČSN EN ISO/IEC 17021:2011 and ČSN EN ISO/IEC 17021-1:2016. The accreditation of certification bodies certifying products is governed by the requirements of the ČSN EN ISO/IEC 17065:2013 standard (Conformity Assessment – Requirements for Product, Process and Service Certification Bodies) and MPA 40-01-16 (Methodological Guidelines for Accreditation).

7.1.2 Certification of products and services in the energy sector

In the Czech Republic, there are several certification systems for the energy sector, such as the one for **ISO 50001 (energy management systems)** – international standard for energy management systems that promotes energy efficiency within organisations. Certification Bodies to award this **certification** are accredited by the CAI.




There are also qualification schemes, such as the one established for **energy specialists**. Energy specialist is a natural person holding an authorisation granted by the MIT (according to § 10 of Energy Management Act No. 406/2000) to perform an energy audit and an energy assessment, prepare an energy performance certificate, inspect boilers and thermal energy distribution systems in operation or inspect air-conditioning systems. A list of energy specialists is publicly accessible on the website of the MIT at <http://www.mpo-enex.cz/experti/>.

Qualification schemes can be used to define requirements in EES certification schemes.

7.1.3 Certification of energy efficiency services

The majority of respondents in the Czech Republic and across All Countries in the QualitEE survey agreed that the main benefits of a quality assurance scheme would be an increase in customer trust and standardised quality criteria. This confirms establishing of quality assurance schemes for EES should be one of the key actions to support EES market growth.

Most Czech respondents reported their preferences and expectations with respect to the desired quality assurance scheme in the Czech Republic as follows:

-  quality assurance scheme would result in a "moderate" or "major" increase in trust in energy efficiency services and their providers while lack of trust is experienced at least in half of cases on the Czech EES market;
-  additional costs as the main drawback to a quality assurance scheme;
-  governmental/public institutions would be most respected bodies to issue EES quality assurance certification;

- ✔ provider or the client should be responsible for bearing the costs of quality assurance;
- ✔ viable fee for quality assurance would be up to 1% of the value of a particular project.

Currently, there are two complementary quality assurance schemes under development in the Czech Republic. First one – Reasonable Energy Savings programme – quality assurance scheme for energy efficiency projects has been already established, while still waiting for projects to register. Second scheme focused on EPC projects and providers certification is in the initial stage of development. Both schemes are described more in detail below.

Reasonable Energy Savings programme

The Reasonable Energy Savings programme was established by the Ministry of Industry and Trade (MIT) with aim to provide examples of good practice in energy efficiency. Activities focused on the promotion of successful energy-saving projects have the potential to create an environment that will facilitate the development of the awareness and stimulate the development and preparation of high-quality energy-saving measures, without using investment funds in the public and private sectors.

Under the programme, a website of online records of implemented measures to promote energy savings and their benefits has been created¹¹. Registered projects must meet quality requirements and comply with the principles of good practice, i.e. with the quality elements specified in the programme. After implementation, such projects can be awarded a certificate of quality, and it will be possible to use the quality mark with the programme's logo.

It is also planned that energy service providers can be awarded the label of a high-quality energy services provider after meeting specific requirements.

The aim of the programme is to stimulate a reduction in energy consumption and improve the quality of energy services with regard to compliance with the adopted European framework, in particular Articles 3 and 7 of Directive 2012/27/EU, both until 2020 and thereafter. The programme is one of the alternative scheme measures referred to in Article 7 of Directive 2012/27/EU.

Certification of EPC services and providers

The certification of EPC services and providers is currently under development in cooperation between the QualitEE project, the MIT and the APES.

Various possibilities for the introduction of the quality assurance scheme for EPC in the Czech Republic have been analysed by the Certification of Energy Savings and Services study financed by the EFEKT2 Programme of the Ministry of Industry and Trade (SEVEN 2017). The study followed up on two other studies on EPC provider certification conducted by the APES with the financial support of the EFEKT Programme (SEVEN 2013; APES 2016).

¹¹ www.usporysrozumem.cz

Certification of Energy Savings and Services study (SEVEN 2017) recommended a system based primarily on EPC project certification. The implementation of several projects which will gain EPC project certification is essential for the subsequent certification of the EPC provider. The final recommendation is to establish a certification system independent of international standards, which is simpler and means lower costs of certification.

EPC certification system need to set quality criteria for the preparation and implementation of EPC projects and stipulate requirements for EPC providers. Provided that all evaluation criteria required for the EPC certificate have been met, the certification body shall issue the project certificate to the applicant. Within QualitEE project, SEVEN carried out a detailed analysis to set criteria for detailed evaluation of EPC projects. Finally, 17 criteria have been selected from the draft version of the European technical criteria for the quality of energy efficiency services (EES)* (Leutgöb et al. 2017) prepared within the QualitEE project. In order to gain a certificate for an EPC project in the Czech Republic, these criteria will have to be fulfilled. The criteria focus on the following areas: savings guarantee, verification of energy savings, maintenance and repair, communication with clients, compliance with users' comfort requirements, and comprehensive contractual arrangements.

As a follow up, EPC certification system features need to be developed in more detail and discussed with the stakeholders on the EPC market. A political decision on which organisations will play three key roles in the system needs to be made: the first organisation sets out the criteria, requirements and rules of the certification system; the authorising body entrusts the certification authority with certification, and the certification body certifies projects and/or the EPC provider.

Results of QualitEE survey on quality assurance

Responses indicate that there is greater trust in EPC/ESC service providers in the Czech Republic than across All Countries in the QualitEE survey (2017) (Figure 33). Only 17% of Czech respondents identified a lack of trust in a majority of cases, which is significantly lower than across All Countries (40%). However, 67% of Czech respondents still experienced lack of trust in EPC/ESC service providers in about half of cases, which indicates that the issue is not resolved.

Similarly to the view across All Countries in the survey, Czech respondents supported the idea that well-defined procurement specifications increase the quality level of services (Figure 34). Two-thirds of them selected either "always" or "in a majority of cases" compared to 79% across All Countries.

Figure 33 In your experience, is there a lack of trust in EPC/ESC service providers? (Percentage share of responses by providers and facilitators Sept 2017)

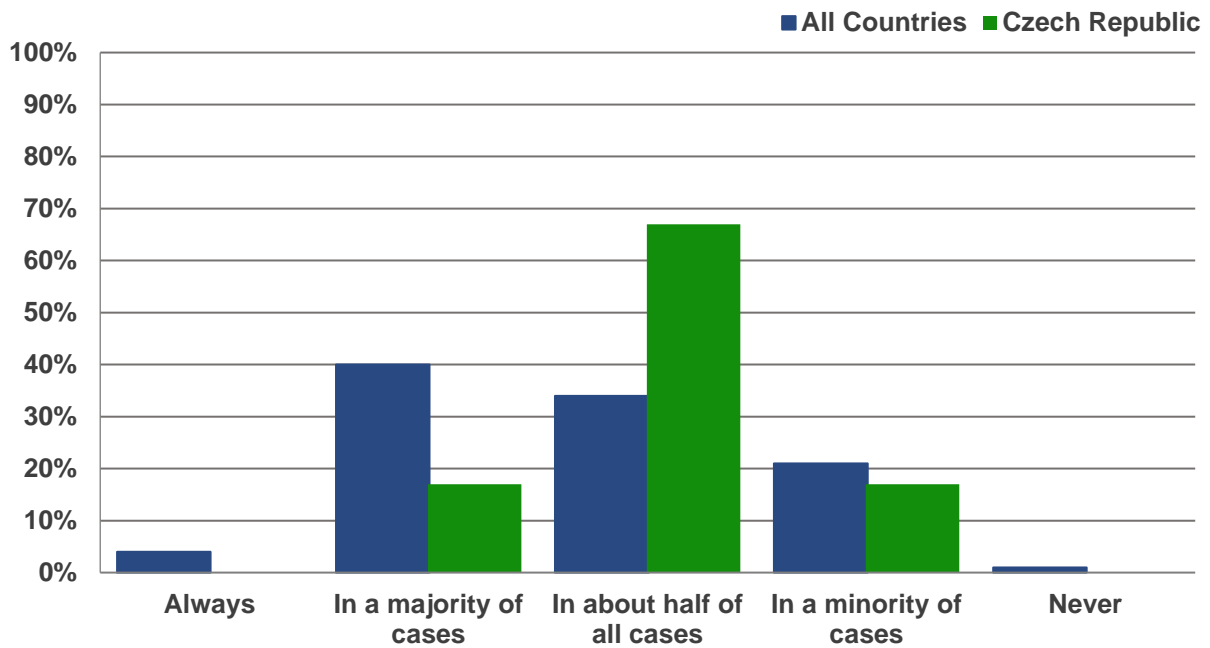
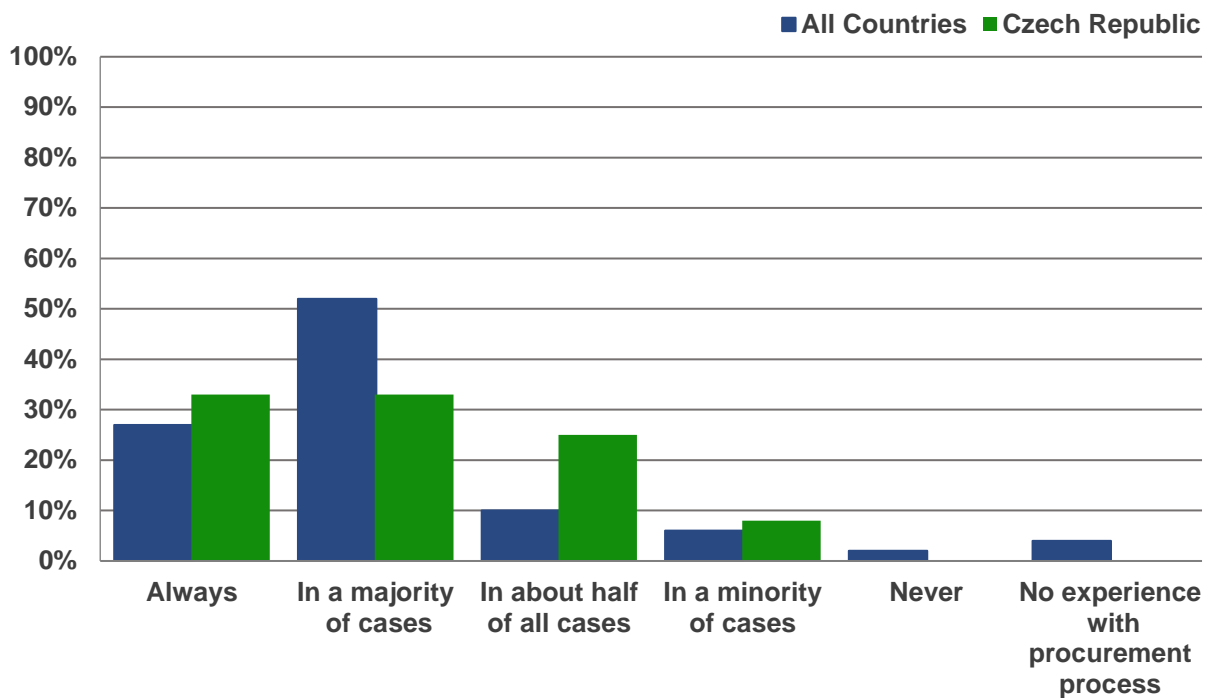


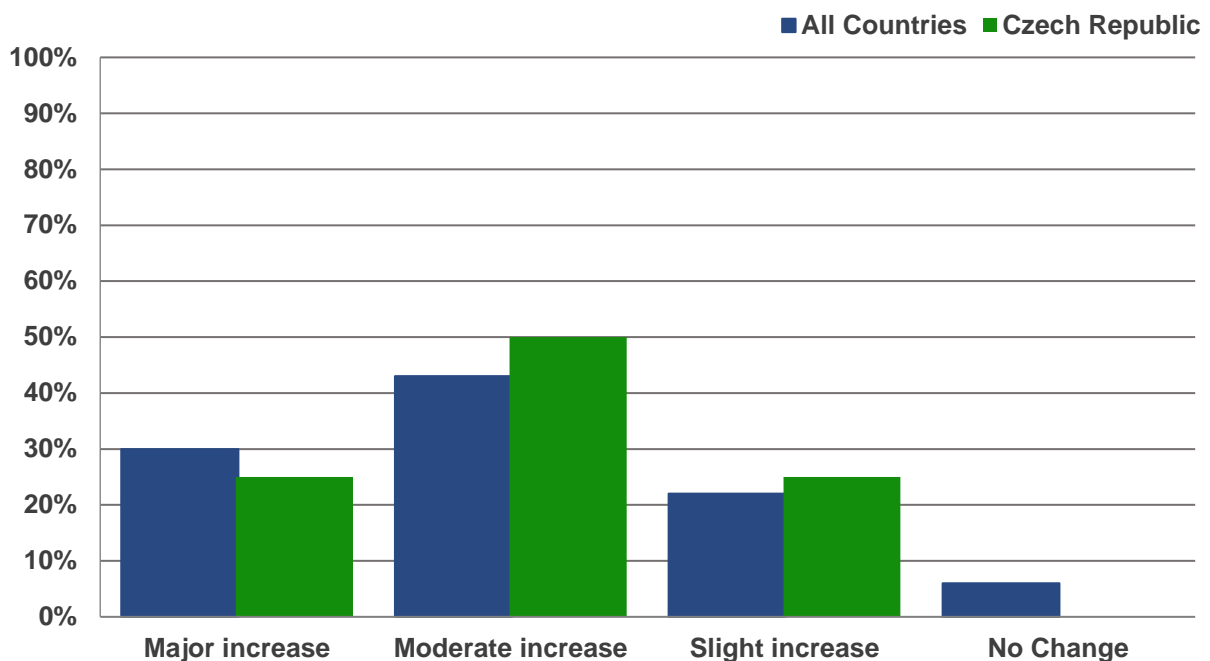
Figure 34 From your experiences, do well defined procurement specifications increase the quality level of EPC/ESC services? (Percentage share of responses by providers and facilitators Sept 2017)



Most respondents – EPC providers and facilitators – in the Czech Republic (75%) and across All Countries (73%) in the survey felt that a quality assurance scheme would result in a "moderate" or "major" increase in trust in energy efficiency services and their providers.

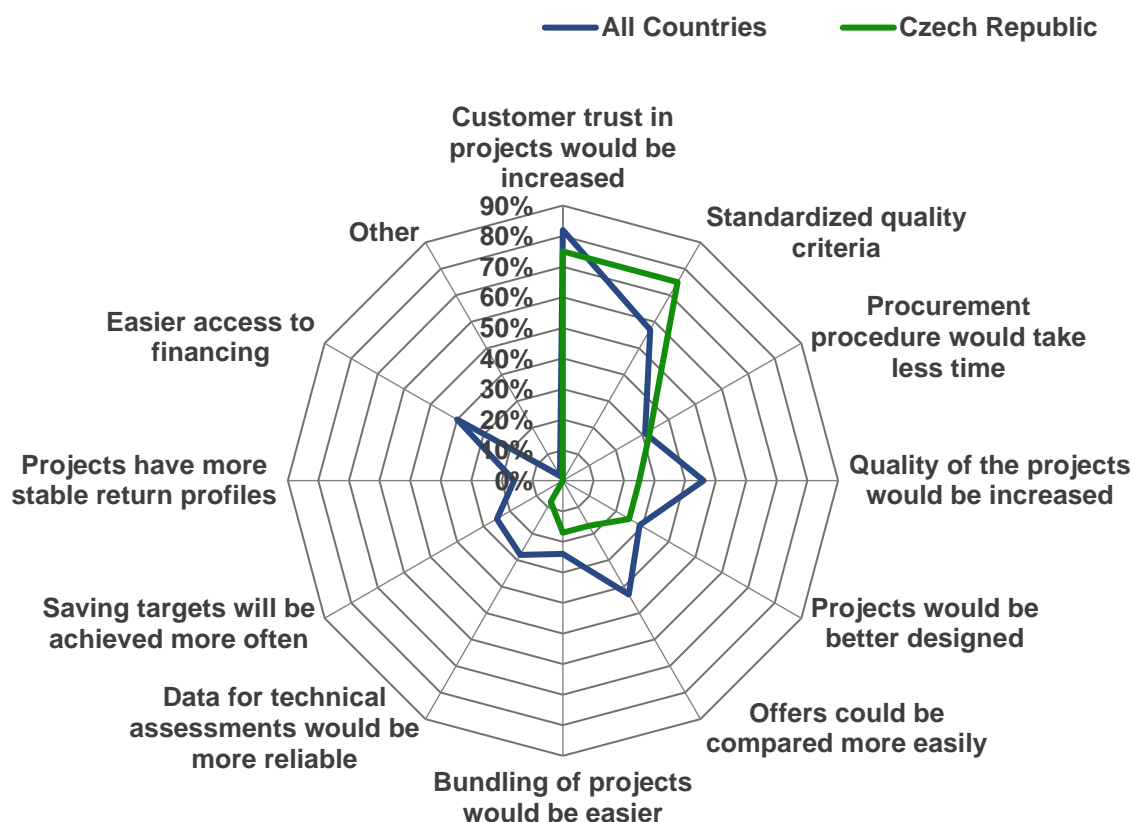
Personal interviews with clients show slightly higher increase in trust expected by clients. More than half (51%) of clients interviewed across All Countries expect that a quality assurance scheme would bring a major increase in client trust in EPC/ESC services and providers and another 37% of them expect at least a moderate increase.

Figure 35 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 Sept 2017)



The majority of respondents in the Czech Republic and across All Countries in the survey agreed that the main benefits of a quality assurance scheme would be an increase in customer trust and standardised quality criteria. Only 25% of Czech respondents expect that such a scheme would increase the quality of the projects, which is considerably lower than across All Countries in the survey. This may be because service providers at this point see quality assurance rather as a marketing tool to distinguish them from the competition rather than as a step towards better service quality.

Figure 36 In your opinion, what would be the added value of a quality assurance scheme like this? (Percentage share of responses by providers and facilitators Sept 2017)

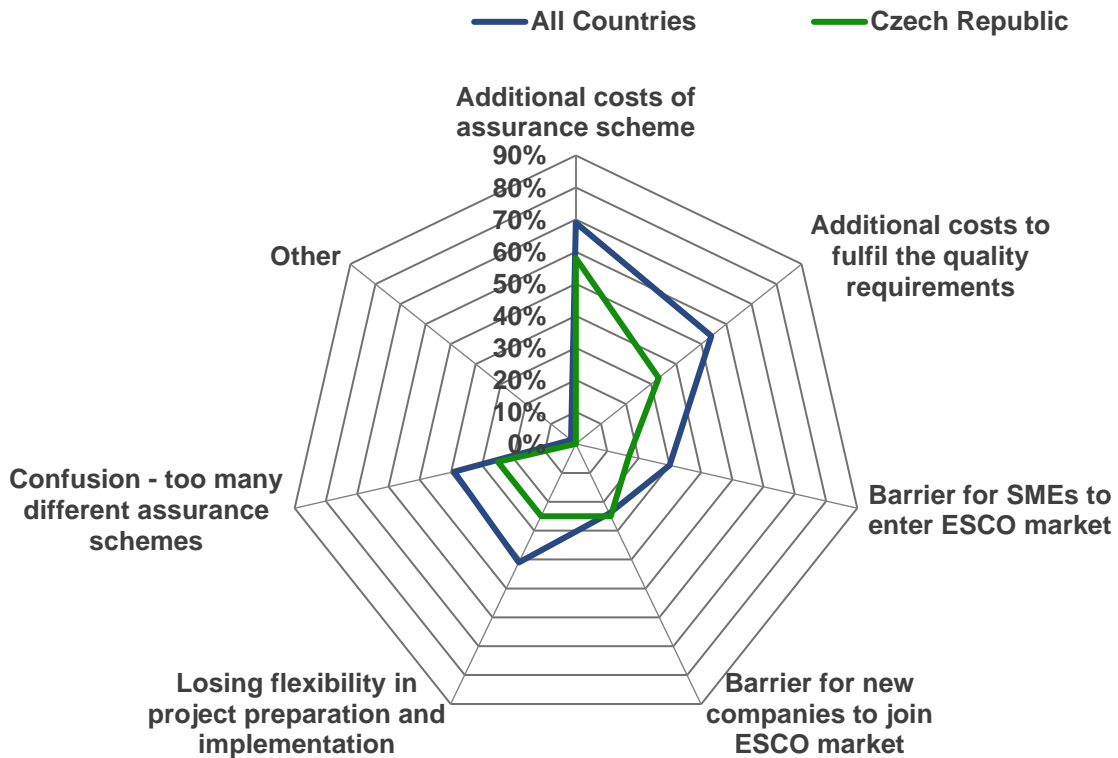


Note: Respondents may have selected multiple answers. The chart shows the proportion of respondents selecting each answer out of overall respondents to the question. Results therefore do not sum to 100%.

Both Czech respondents and their European counterparts across All Countries identified additional costs as the main drawback to a quality assurance scheme (Figure 37). However, there are much stronger concerns relating to additional costs of quality assurance rather than additional costs to fulfil the quality requirements.

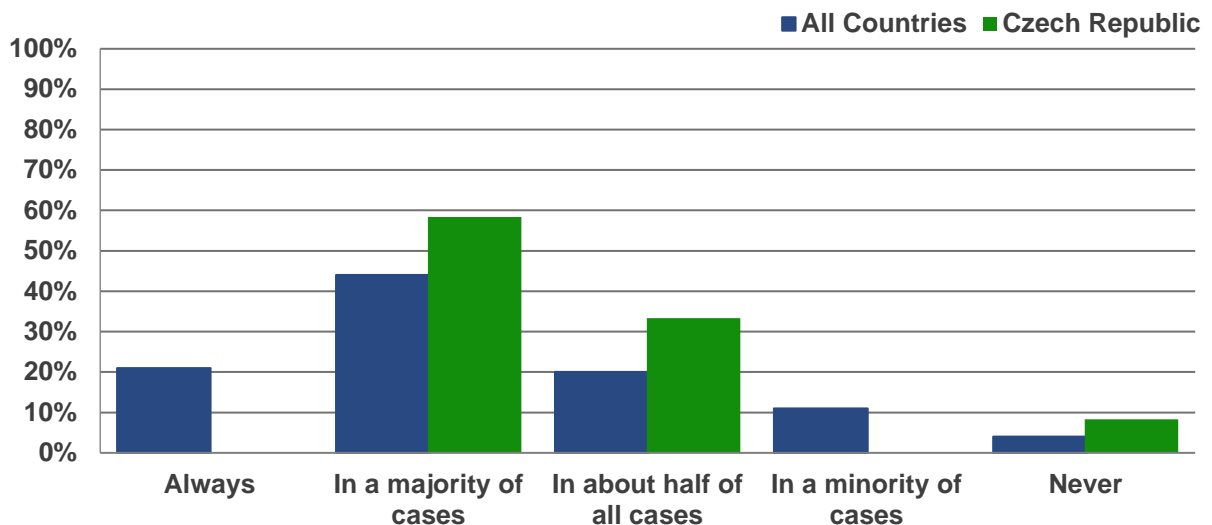
Czech respondents were less strong than European counterparts in indicating a preference to implementing projects subject to quality assurance. However, most of them (58%) still stated a preference in the majority of cases (Figure 38).

Figure 37 In your opinion, what drawbacks or barriers may be created by a quality assurance scheme like this? (Percentage share of responses by providers and facilitators Sept 2017)



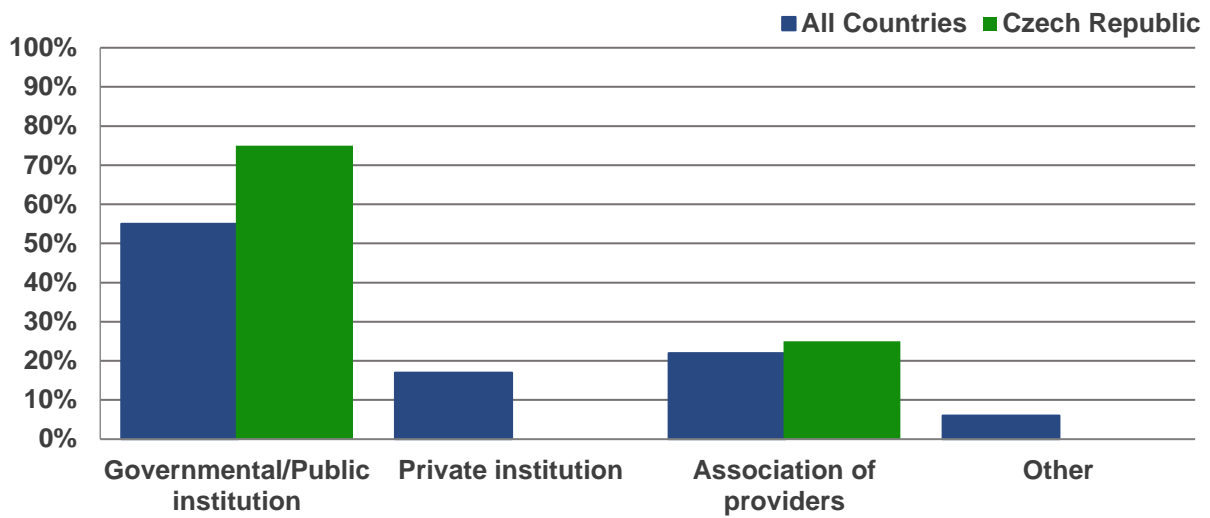
Note: Respondents may have selected multiple answers. The chart shows the proportion of respondents selecting each answer out of overall respondents to the question. Results therefore do

Figure 38 Would you prefer implementing a project, which is subject to quality assurance over a project without quality assurance? (Percentage share of responses by providers and facilitators Sept 2017)



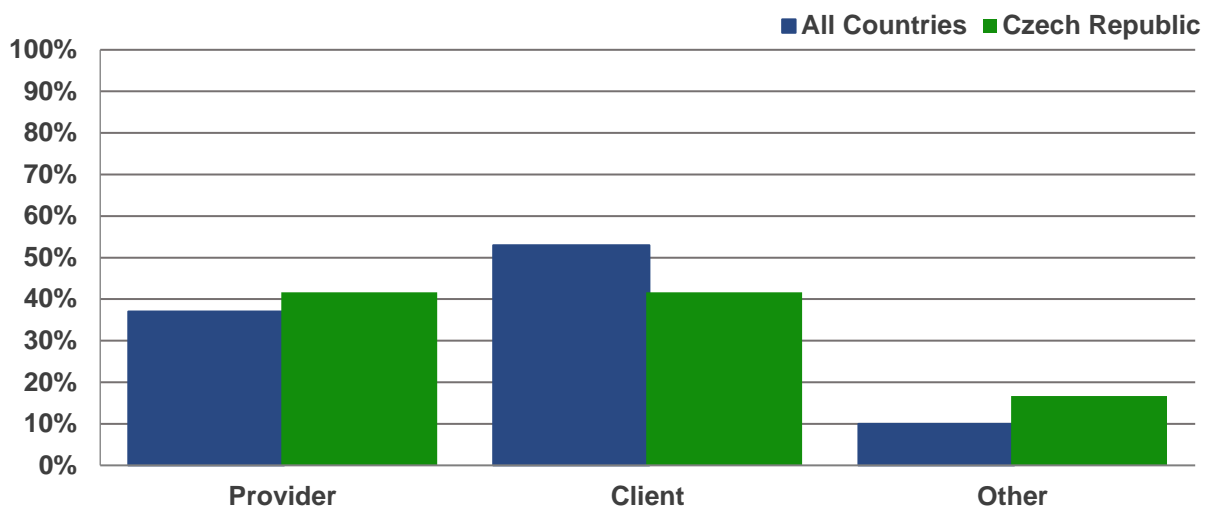
Both respondents in the Czech Republic (75%) and across All Countries in the survey (55%) clearly identified governmental/public institutions as being the most respected bodies to issue quality assurance certification for energy efficiency services. Only 25% of Czech respondents selected associations of providers to issue certification and none of them preferred private organisations.

Figure 39 Which would be the most respected body to issue a quality assurance label or certification for EPC/ESC services in your country? (Percentage share of responses by providers and facilitators Sept 2017)



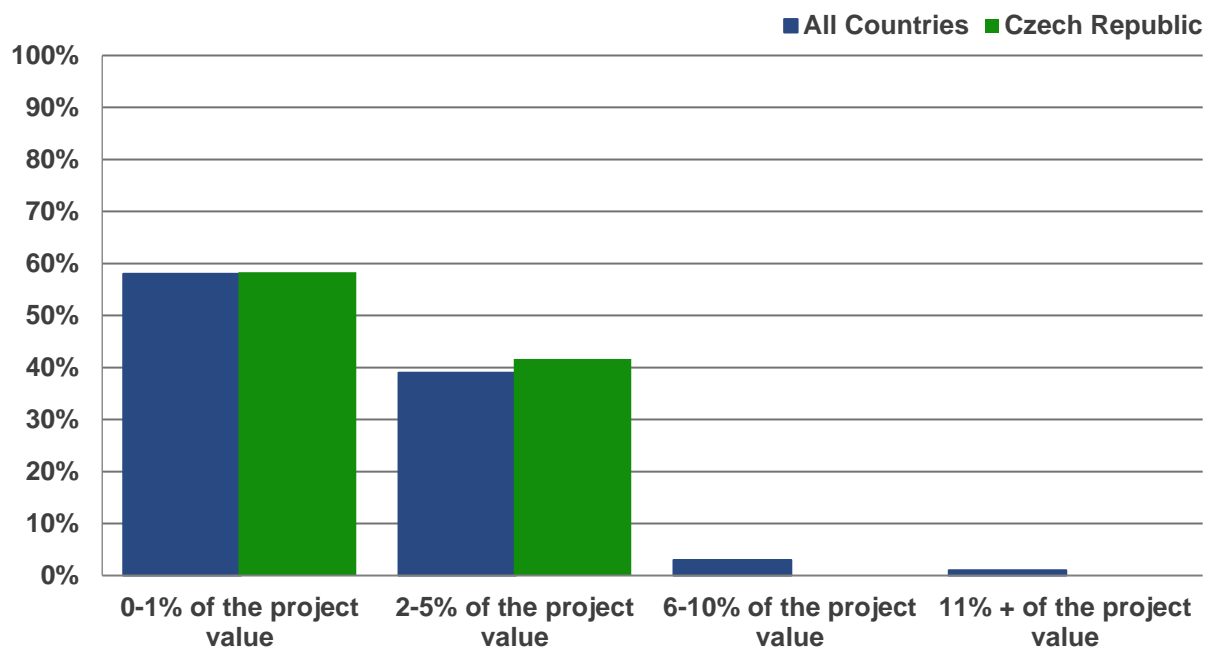
The majority of EPC providers and facilitators across All Countries in the survey (53%) agreed that the cost for quality assurance should be met by the client. On the contrary, Czech respondents disagree on this matter as an equal proportion of them selected the provider and the client to be responsible for bearing the costs of quality assurance (42% in each case).

Figure 40 Who should pay for the quality assurance of EPC/ESC projects? (Percentage share of responses by providers and facilitators Sept 2017)



The majority (nearly 60%) of both Czech and European respondents agreed that a viable fee for quality assurance would be up to 1% of the value of a particular project and around 40% of them think it would be somewhat higher – between 2 and 5%.

Figure 41 What would be a viable fee level for external quality assurance per EPC/ESC project? (Percentage share of responses by providers and facilitators Sept 2017)



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