

Quality assurance for energy efficiency services: A test case from Austria

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Abstract

Austria is one of the most advanced energy efficiency service (EES) markets in Europe. With estimated 250 energy performance contract (EPC) projects in Austria alone, this form of EES has been particularly successful since the middle of the nineties. DECA, the Austrian Association of Energy Service Providers, gathers about 25 energy service companies, which represent different branches of origin (utilities, technology suppliers, building service companies, energy consultants etc.). Although compared to most other EU countries EES are well-known many customers still react with reluctance as soon as they get EES offered because they have difficulty separating “good-quality” from “poor-quality” offers. Therefore, in 2013 DECA decided to develop a quality assurance system for EES. A country comparison implemented in an EU project shows that this development is very unique across Europe and hence can be seen as trend-setting for further development in the European energy service markets.

The paper describes the development process and the actual status of the quality assurance system:

- In a first step, the three main dimensions of quality are assessed with regard to their suitability for the energy service business: (a) quality of the service provider, (b) quality of the service, and (c) order of quality. For all three of these dimensions sets of quality criteria have been identified and evaluated.
- In a second step, the focus is put on classifying the quality of EES as such. The main quality criteria in this context are: (a) energy analysis approach, (b) implementation of technical measures, (c) saving guarantee, (d) communication processes, (e) achievement of user comfort, (f) involvement of users, and (g)

maintenance and conservation of value. Each quality criterion is further detailed by means of appraisal criteria and verification methods. At the same time, the approach is open to different kinds of EES: energy performance contracting; energy supply contracting; operational contracting; energy consultancy; re-commissioning etc.

- Finally, the paper evaluates different options for the institutional framework of the quality assurance system under development.

Introduction: Quality uncertainties retard energy service markets

The prevailing trend of energy (efficiency) service markets in EU over the last ten years is a slow growth (JRC, 2014), however with considerable differences between mature markets and new markets. Besides the “traditional” barriers to the development of the ESCOs market, like low awareness and lack of information, financing problems, non-supportive procurement rules, performance risk, the financial crisis and economic downturn, etc., mistrust of the quality of energy efficiency services (EES) played a significant role. Some of the reasons why energy service markets have not matured in many countries encompass lack of good quality of EES, as well as absence of accreditation and standardisation systems.

In less developed energy efficiency markets, certificates may increase trust, for instance for the service provided. This could be developed at a national or regional level (EACI, 2011). Experiences from practice show that the provision of excellent services for adequate pricing is not self-evident. Therefore, energy service providers that are interested in long-term relationships with their clients need to provide adequate quality in order to acquire confidence.

In advanced energy efficiency markets a label or a certificate for the service provided may be seen as unique selling proposition (USP). A USP refers to aspects of the service, which clearly distinguishes from other competing services.

According to the European Platform for the Promotion of Energy Performance Contracting (Eurocontract, 2007) there is no standardised certification system for EES providers yet. However, ISO 9000 and/or ISO 14000 can constitute a meaningful preliminary validation of the company’s general abilities. The ISO 9000 family addresses various aspects of quality management and ISO 14000 focuses on environmental management. A company can be certified in conformance with ISO but this does not guarantee the compliance, and therefore the quality of end products and services.

On a European level, the European body of standardization (CEN) has developed definitions and requirements for energy efficiency services. The European Standard EN 15900:2010 about energy efficiency services may serve as a reference document for appropriate qualification, accreditation and/or certification schemes for providers of energy efficiency services. It is written for customers and providers of energy efficiency services.

Against this background, this paper

- describes the heterogeneity of EES as one of the starting challenges when defining quality;
- presents the overall existing framework for quality assurance and certification;
- gives an overview on some generic questions that emerge when quality assurance of EES is going to be implemented;
- describes a few existing approaches in the context of quality assurance of EES; and
- specifies the Austrian test case developed by a working group of DECA, the Austrian Association of Energy Service Providers.

Framework I: Heterogeneity of EES

The Energy Efficiency Directive (EED - 2012/27/EU) sets the overall policy framework with respect to market introduction of EES. As part of the adoption of the EED the EU Member States have to submit national energy efficiency action plans to the European Commission. The directive emphasises “*the need to increase energy efficiency in the Union to achieve the objective of saving 20 % of the Union’s primary energy consumption by 2020 compared to projections. (...) Projections made in 2007 showed a primary energy consumption in 2020 of 1 842 Mtoe. A 20 % reduction results in 1 474 Mtoe in 2020, i.e. a reduction of 368 Mtoe as compared to projections.*”

As Persson (2014) highlights, there are provisions related to the availability of qualification, accreditation and certification schemes for providers, inter alia energy audits, under the EED. Energy audits can be carried out by qualified and/or accredited experts according to qualification criteria. Auditors, for instance, are affected by

Article 16, which states where a “Member State considers that the national level of technical competence, objectivity and reliability is insufficient, it shall ensure that, by 31 December 2014, certification and/or accreditation schemes and/or equivalent qualification schemes, including, where necessary, suitable training programmes, become or are available for providers of EES, energy audits, energy managers and installers of energy-related building elements as defined in Article 2(9) of Directive 2010/31/EU.” The schemes shall provide transparency to consumers, be reliable, and contribute to national energy efficiency objectives.

The European standard EN 15900:2010

The European standard EN 15900:2010 (Energy efficiency services - Definitions and requirements) defines energy efficiency services (EES) as an agreed task or tasks designed to lead to an energy efficiency improvement and other agreed performance criteria. EES shall include an energy audit (identification and selection of actions) as well as the implementation of actions and the measurement and verification of energy savings. A documented description of the proposed or agreed framework for the actions and the follow-up procedure shall also be provided. The improvement of energy efficiency shall be measured and verified over a contractually defined period of time through contractually agreed methods.

Energy efficiency services and their value chain

Although EN 15900:2010 presents an overall framework of energy (efficiency) services, it does not fully reflect the wide scale of different forms of EES that are offered in European markets. Just to show the case of Austria: DECA distinguishes seven core EES, which are summarized in Figure 1. They are given in form of a matrix including the belonging value chain (A-I). According to the IEE project ChangeBest (Leutgöb et al., 2011) the value chain reflects the implementation process of an energy efficiency improvement action, which is any action that directly leads to a reduction in energy consumption.

It is obvious that the heterogeneity of EES has to be reflected in different elements of quality: The quality of Energy Consulting has to be defined in a specific way as compared to the quality of e.g. Energy Delivery Contracting or Energy Performance Contracting.

Steps of the Value Chain	Different Forms of Energy Services						
	1	2	3	4	5	6	7
Information and motivation	A						
Consulting and analysis	B						
Planning	C						
Finance and public funding	D						
Installation and technical implementation	E						
Energetic optimisation of operational phase	F						
Monitoring and Measurement & Verification	G						
Warranty services	H						
User motivation	I						

Figure 1: Different forms of EES and their position in the value chain, Source: DECA and e7

Framework II: Certification, accreditation, labelling, and qualification schemes

The main objective of standardization is usually that everybody adheres to the same procedures or product specifications. They eliminate barriers to trade, complement European legislation, and, as a result, form a basis of the Internal Market. However, an increase in quality is not an automatic result of standardization.

According to ISO (2015), certification can be a useful tool to add credibility, by demonstrating that a product or service meets the expectations of the client. Certification means the provision of a written assurance (a certificate) by an independent body that the product, service or system in question meets specific requirements (compliance with certain international standards). One certification body may execute several different certification programmes. They are evaluated and accredited by an authoritative body. Accreditation means the formal recognition by an independent body, generally known as an accreditation body that operates according to international standards. The foundations are given in ISO/IEC 17000:2004. Also ISO 17024 and ISO 17065 are of particular importance.

A certification label is a label or symbol indicating that compliance with certain standards has been verified. Usually a standard-setting body controls the use of a label. According to FAO (s.a.), certification bodies certify against their own specific standards, the label can be owned by the certification body. Ecolabels, for instance, are intended to educate and increase consumer awareness of the environmental impacts of a product and bring about environmental protection by encouraging consumers to buy products with a lower environmental impact (ISO, 2012).

According to Franco and Forni (2010), qualification, mostly referring to persons, applies when the competences are verified by somebody that is not an accredited third party certification body, e.g. a national or local authority. There is a difference between qualification and accreditation-certification schemes.

Generic questions regarding quality assurance of EES

What should be certified?

With regard to certification of quality the following three dimensions can be certified:

- The energy service provider;
- The quality standards for the service provided;
- The order quality (preparedness of the client).

A quality certification scheme should be offered with reasonable costs and efforts in order to avoid of additional (entrance) barriers as the market of EES is still a young one. Therefore, the required criteria must be selected carefully. The aim is i) the acceleration of the EES market, ii) supporting transparency and comparability, and iii) boosting competition among EPC providers in order to achieve a fair market price for high quality services. Clearly, black sheep need to be banished from the EES market.

Who carries out the certification?

A certificate is provided by an independent body, a so-called certification body, assuring that the product, service or system in question meets specific requirements. Typically a certificate bases on International, European or national norms. Other than that, comprehensive guidelines can for instance be used. It is important that a broad consensus on these guiding principles is given among most important stakeholders. Of course, guidelines can be further developed towards a norm. Depending on the underlying document – referring to a norm or guideline for instance – the certification body can be chosen. When choosing a certification body ISO suggests to:

- Evaluate several certification bodies;
- Check whether the certification body uses the relevant CASCO standard. CASCO is the ISO committee that works on issues relating to conformity assessment;
- Check whether the certification body is accredited. Accreditation is not compulsory, and non-accreditation does not necessarily mean it is not reputable, but it does provide independent confirmation of competence. To find an accredited certification body, contact the national accreditation body in your country or visit the International Accreditation Forum.

As the EES markets across Europe are highly diverse emerging markets, intermediate markets, and advanced markets need to find their own suitable approach for a quality certification scheme. Compliance with the core

values is important in order to provide security and, hence, added-value to all market actors. Therefore, emerging and intermediate markets should refer at least to the core values of EES (as described in the European Code of Conduct; compare below) and some well selected quality criteria for energy service providers, the energy service, or the client in order to develop their market. In advanced markets, a stringent set of quality criteria can be applied in order to increase comparability between EES and energy service providers.

Existing approaches as starting point

EPC quality determinants according to the European Code of Conduct

As part of the IEE-project Transparens in 2014, the so-called European Code of Conduct was developed and introduced to the market. Transparens aims at increasing the transparency and trustworthiness of Energy Performance Contracting (EPC) markets throughout Europe. One of its main outputs is the development and testing of the European Code of Conduct for EPC. The Code is a set of values and principles that are considered fundamental for the successful, professional and transparent implementation of EPC. Compliance with the Code serves as a guarantee of the quality of EPC projects implemented across Europe. EPC providers that are ready to adhere to the principles of the Code are expected to raise confidence in using EPC by the potential clients. The EPC Code of Conduct is a voluntary commitment, is not legally binding, and represents a fair energy service business model. For comparison and details follow Staničić et al. (2014).

EPC core values

The identified EPC core values are those that define the goals and virtues of professional EPC practice and clients' expectations of them. The EPC core values are grouped in three:

- Efficiency – Energy savings; economic efficiency; sustainability in time.
- Professionalism – Expertise; high-quality service; health and safety concerns; good name in the sector and project; reliability; responsibility; respect; responsiveness; objectivity.
- Transparency – Integrity; openness; long-term approach; transparency of all steps and financing arrangements; clear, regular and honest communication.

Guiding principles of EPC projects

The guiding principles of EPC projects are:

- The EPC provider delivers economically efficient savings.
- The EPC provider takes over the performance risks.
- Savings are guaranteed by the EPC provider and determined by M&V.
- The EPC provider supports long-term use of energy management.
- The relationship between the EPC provider and the client is long-term, fair and transparent.
- All steps in the process of the EPC project are conducted lawfully and with integrity.
- The EPC provider supports the client in financing of EPC project.
- The EPC provider ensures qualified staff for EPC project implementation.
- The EPC provider focuses on high quality and care in all phases of project implementation.

Existing quality assurance instruments for EES

In a guideline developed in the frame of the EU-project EUROCONTRACT Bleyl et.al. (2008) explain that the quality of a service is less obvious in comparison with tangible products. Mostly, the result after completing a service is more important than the way the service was performed. Based on this observation they define elements of EES that ensure the delivery of an agreed quality. The most obvious quality assurance instrument (QAI) is, of course, an energy saving guarantee, but it is not the only tool available. The following QAI used within EES are at hand:

- Energy savings guarantee
- Supply guarantee
- Guaranteed service price – all costs included
- Operation and maintenance guarantee
- Comfort guarantee
- Environmental benefit guarantee
- Standardised model contracts for EPC services

- Functional tender to facilitate integrated approaches
- Reporting and documentation agreement
- Client determination of components and construction quality
- Flexible contract terms
- Communicating the use of high quality components within EPC projects
- Communicating the high construction quality within EPC

Quality assurance instruments for EES add security for most of the clients, are easy to verify and can even relieve energy service company (ESCO) efforts and risks. The EUROCONTRACT-project (2007) also provides suggestions on an EU-wide certification system for ESCOs and EES. Depending on the level of development of the respective energy service market the weighting of quality criteria may differ. Nonetheless, quality criteria are based on core values and principles.

Following Staničić and Bevk (2014), the results from the EPC Quality Survey of November 2013 the energy savings guarantee is the most used EPC quality assurance instrument across the EU. Furthermore, operation and maintenance guarantee and comfort guarantee are outstanding, as shown in Fig. 2. Other instruments are unevenly present showing a diversity of approaches at the complex and unevenly developed EU EPC market(s).

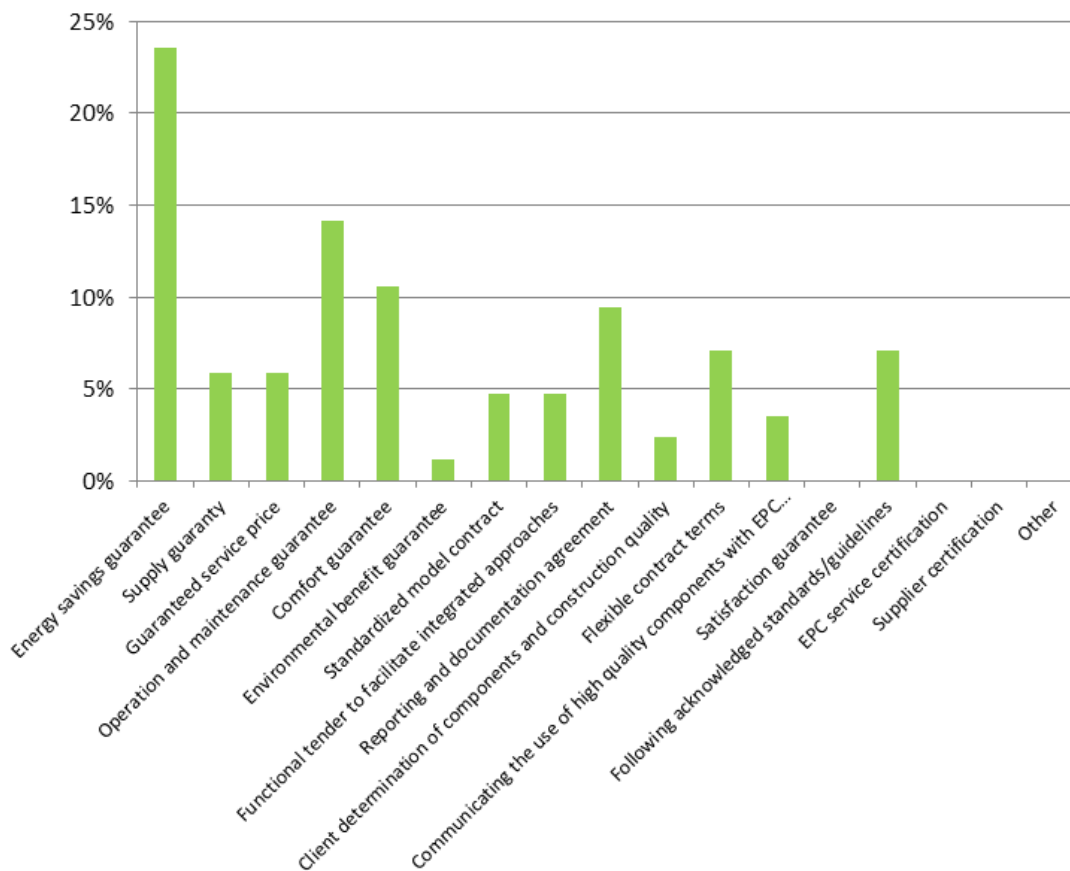


Figure 2: EPC quality assurance instruments used across EU (Source: Staničić and Bevk, 2014)

Test case from Austria: Quality criteria for EES

Austria is one of the most advanced energy service markets in Europe. With an estimated amount of 250 EPC projects, this form of EES has been particularly successful since the middle of the nineties. DECA gathers about 25 energy service companies, which represent different branches of origin (utilities, technology suppliers, building service companies, energy consultants etc.). Although compared to most other EU countries EES are well-known many customers still react with reluctance as soon as they get EES offered because they have difficulties to separate “good-quality” from “poor-quality” offers. Therefore, in 2013 DECA decided to develop a quality assurance system for EES. The system should fulfil the following requirements:

- Clarity, traceability and transparency;

- Preparedness for certification by an independent body;
- Applicability to all kinds of EES.

Step 1: Defining quality criteria

In a first step, the DECA-working group developed a set of quality criteria referring to the different dimensions of quality:

- Quality of the service provider
- Quality of the service
- Quality of the order

Table 1 gives an overview on the set of quality criteria identified. The guiding principle in selecting the quality criteria was to identify the most critical issues from practical experience in energy service projects implemented. The DECA working group is thus fully aware that the defined set does not cover all potential aspects of quality and is necessarily incomplete.

Table 1: Set of quality criteria identified by the DECA-working group.

Quality criteria for the energy service provider	
A-1	Educated and experienced staff
A-2	References
A-3	Duration of market presence
A-4	Portfolio of services
A-5	Coverage of the portfolio of services
A-6	Market appearance
A-7	Other quality assurance instruments
Quality criteria for the energy service	
B-1	Adequacy of energy audit
B-2	Service level regarding the implementation of technical measures
B-3	Energy savings guarantee
B-4	Verification of savings
B-5	Conservation of value and maintenance
B-6	Communication between provider and client
B-7	Adherence to user comfort
B-8	User information and motivation
B-9	Transparency and completeness of contractual stipulations
Criteria regarding order quality	
C-1	Adequacy of performance description
C-2	Selection process
C-3	Support during performance delivery
C-4	Credit-worthiness

Step 2: Operationalising quality criteria

In order to be able to apply quality criteria in a transparent and traceable way – which is seen as a precondition for applying them in a certification scheme – it is necessary to operationalise them. The DECA working group decided that energy service markets most urgently need a quality assurance system related to the energy service as such. Therefore, – in a first attempt – operationalization was limited to the quality criteria for the energy service (B-1 to B-9). In this context, operationalization needs to cover the following directions:

- Due to the heterogeneity of EES it is obvious that not all quality criteria are relevant for all kind of services. Therefore, quality criteria need to be assigned to the relevant EES.
- Quality criteria need to be specified by assessment criteria, of which the (degree of) fulfilment can be checked by traceable verification methodologies.
- Finally, the different quality criteria need to be consolidated into a transparent “overview” on the overall quality delivered. Therefore, a suitable valuation method needs to be developed.

Assigning quality criteria to EES

Figure 3 shows a matrix that assigns certain quality criteria to different kinds of EES. In this way, the set of quality criteria becomes applicable to all kinds of EES, which are offered on the Austrian market. This is a core success factor the system from the point of view of DECA, since DECA represents the full heterogeneity of the Austrian energy service market with members from different industrial and service branches.

		quality criteria for services								
		Adequacy analysis	Service level regarding the implementation of technical measures	Savings guarantee	Verification of savings	Conservation of value and maintenance	Communication between provider and client	Adherence of user comfort	User information and motivation	Transparency and completeness of contractual stipulations
		2.1.	2.2.	2.3.	2.4.	2.5.	2.6.	2.7.	2.8.	2.9.
1	Energy consulting									
2	Energy performance contracting									
3	Energy delivery contracting									
4	Operational contracting									
5	Implementation technical energy efficiency actions									
6	Re-Commissioning									
7	Energy management									

Figure 3: Quality criteria linked to different forms of EES, Source: DECA and e7 (2013-2015), developed within the framework of the IEE project Transparense.

Developing traceable assessment criteria and verification procedures

For each single quality criterion, the DECA-working group developed a set of assessment criteria and verification routines with the aim to fulfil the following challenge:

- The decision whether a certain criterion is fulfilled or not can be taken based on the presence resp. absence of clearly defined conditions. This can be either a Yes-No-decision or a decision on a certain degree of performance (e.g. point system from 1-10);
- The decision needs to be possible based on available information in different points in time: a) before project start: ex-ante verification; or b) after the end of the project: ex-post verification.

Table 2 and Table 3 present two examples for the translation of quality criteria into a traceably and clear system of assessment criteria and verification routines.

Table 2: Assessment criteria and verification process for quality criteria “Energy Savings guarantee”.

No.	Assessment criteria	Evidence	Verification	Comment
3-1	Adequate level of savings guarantee	This requires an energy analysis conducted prior to the EES. In this case the level of the savings guarantee has to match with the identified economic energy savings potential from the analysis (max. deviation: 15%)	Draw a comparison between the contractually guaranteed savings and the economic savings potential according to the analysis.	Consider that the period under consideration for the definition of the economic saving potentials from the analysis equals the run-time of the EES contract.
3-2	Remuneration depends on the attainment of the savings guarantee	Grade 1: The reduction of remuneration has to be at least the same level as the level of the non-attainment of the guarantee assurance. Grade 2: Achieved savings are shared between the EES provider and the client according to a defined ratio.	On the basis of the contractual arrangements with respect to the guarantee assurance.	Grading leads to a differentiation with respect to the quality of the guarantee assurance: Grade 1 is used conventional EPC contracts; Grade 2 is used in e.g. Re-Commissioning contracts.
3-3	Adequate intervals for the inspection of compliance with the guarantee assurance.	In principle once a year. Divergence is allowed only if variations for technical reasons of the savings effect can be ruled out over a longer period.	Ex-ante: On the basis of contractual arrangements. Ex-post: Have the set intervals really been adhered to?	The exception refers to light and pump contracting for instance. In these cases, longer intervals are acceptable.

Table 3: Assessment criteria and verification process for quality criteria “Communication between provider and client”.

No.	Assessment criteria	Evidence	Verification	Comment
6-1	Announcement of contact persons	Definition of a contact person with respective task description in a suitable document (contract, project handbook); Amendment in case of change of contact person or task description.	Ex-ante: Are contact persons and their tasks described in a contractually relevant document? Ex-post: Have changes of contact persons or their tasks been written down mandatory?	In longer-lasting EES (e.g. contracting models) the traceability of changes of the project team is of particular importance.
6-2	Access to data and data exchange (in both directions)	Availability of an approach or tool which ensures a simple data exchange.	Ex-ante: Examination of the approach or tool for data exchange based on reference projects. Ex-post: Examination of satisfaction with data exchange; utilisation of tools in practice.	Usually the technical facilities are at hand but sometimes they are not applied productively.
6-3	Capturing and continuous actualisation of all measures carried out by the provider	Availability of a tool, which provides the possibility to capture all measures clearly arranged.	Ex-ante: Examination of the offered tool for capturing measures based on reference projects. Ex-post: How up-to-date are the recorded data for implementing measures during the project and after the end of the project (random sample)?	

6-4	Organisational measures for integration of internal staff	Definition of concrete organisational measures, which allow the continuous exchange of information between the provider and the internal staff (e.g. regular facility Jour-Fix) in suitable documents (e.g. project handbook).	Ex-ante: Is there a project handbook (or any similar document) in which appropriate organisational measures are designated? Ex-post: Have the appropriate organisational measures been implemented?	After capturing of data and information in suitable tools also direct communication between representatives of the provider and the client is absolutely necessary. Only in this way, can ambiguities be wiped out quickly.
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Elaborating a conflating valuation method

In this part of operationalization of the DECA working group has prepared a schedule that enables a consolidated “overview” on the overall quality of the service. This is done in the following way:

- Firstly, it was agreed that as a general rule the fulfilment of each assessment criteria is evaluated by a simple Yes-No-decision. This means, that partial fulfilment is not possible: If certain elements that are required in the verification process are missing, this specific assessment criteria is not fulfilled. There will be only very few exceptions from this general rule. To give one example: The assessment criteria 3-2 “Remuneration depends on the attainment of the savings guarantee” under quality criteria 3 “Energy savings guarantee” (compare Table 2) includes a differentiation of two grades, where Grade 1 (“The reduction of remuneration has to be at least the same level as the level of the non-attainment of the guarantee assurance.”) is more valuable than Grade 2 (“Achieved savings are shared between the EES provider and the client according to a defined ratio.”).
- Secondly, the overall quality will be presented in a radar diagram. Since – as described above – not all quality criteria apply for all kinds of EES, the radar diagrams are composed differently for each single energy service. Figures 4 and 5 give examples: The radar diagram of Energy Performance Contracting contains all 9 quality criteria, whereas the radar diagram of Energy Consultancy is composed only of 3 quality criteria, because the other criteria are not applicable to this energy service.
- Finally, there is the possibility to include a numerical evaluation simply by summing up all assessment criteria (fulfilment = 1; non-fulfilment = 0) and dividing it by the number of assessment criteria evaluated for the specific energy service. From valuation methods we have learned that on the one hand numerical “summaries” can be easily communicated – even more easily if the numerical result is once again condensed to simple categories such as “silver”, “gold”, “platinum” – on the other hand it is obvious that a lot of information on the “character” of the quality of the service is lost. Looking only at the overall figures the client will not be able to distinguish where are the specific strong or weak points of the service offered or implemented. So far, the DECA working group has not taken a definite decision on whether or not a numerical evaluation will be implemented. Also the question, whether various assessment criteria should be weighted differently (more important / less important), is still under discussion.

Energy Performance Contracting

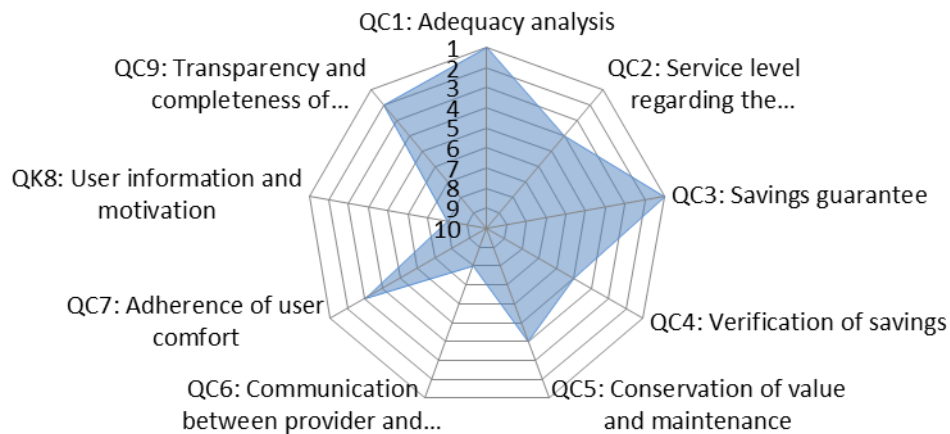


Figure 4: Example of the overall evaluation by a radar diagram for the energy service EPC.

Energy Consulting

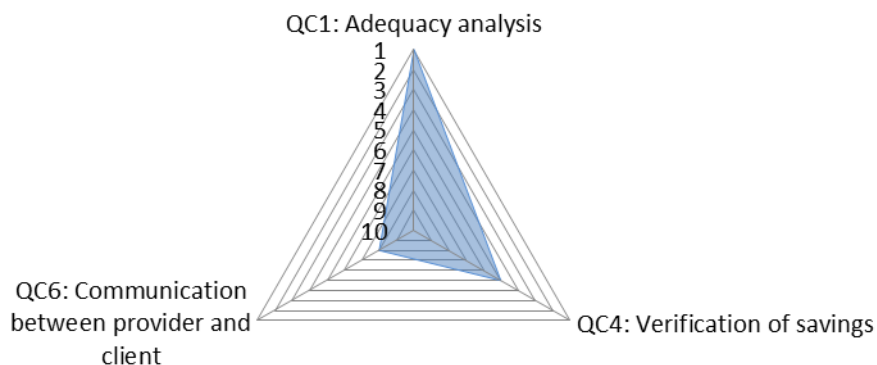


Figure 5: Example of the overall evaluation by a radar diagram for the energy service “Energy Consulting”.

Step 3: Setting-up an institutional framework for quality assurance

In order to build up a suitable institutional setting DECA has decided to implement a 3-step-approach. The stepwise approach is aimed at ensuring that market players get incrementally accustomed to the quality assurance system developed by DECA:

- Step 1 – Test phase: During the first half of the year 2015 the applicability of the quality criteria will be tested in 3 to 5 test cases. The test phase will build prevalingly on projects which have been already implemented (“ex-post evaluation”). Each test case will be evaluated by different experts and variations in evaluation will be analysed. If the test phase uncovers shortcomings with regard to applicability and reproducibility of the quality criteria, the catalogue will be adapted accordingly.
- Step 2 – Application as guideline for bilateral agreements: In the second phase which is envisaged for about 6 months, the quality criteria catalogue will be published and disseminated. Market players – EES providers as well as customers – will be invited to apply the quality criteria in their projects and to give feed-back on improvement potential.
- Step 3 – Certification by an independent third party: If the first two steps deliver promising results and if the market players show sufficient interest in the application of the quality criteria catalogue, DECA

plans to establish a certification scheme where an independent evaluator appraises the fulfilment of quality criteria and thus of a certain agreed quality level. The certification will be offered as a service to the market which is paid either by the EES provider or by the EES customer. The institutional setting of the evaluator is not yet decided. There are two major options: On the one hand independent evaluators could come from specialised certification bodies (such as DNV GL or TÜV companies), on the other hand DECA itself could manage a system of independent experts including their training and supervision. Experience from other quality assurance markets (e.g. introduction of management systems; sustainable building certificates) shows that also the EES market offers potential for this kind of service.

Conclusions

Quality assurance of EES is not an easy task at all, prevailing due to the following reasons:

- In general, compared to material products it is more difficult to capture the characteristics of quality of services.
- There exists a big heterogeneity of EES, which makes it difficult to define quality requirements applicable to all forms of EES.
- Compared to other businesses the level of standardisation of the different forms of EES is still very low. Therefore, quality evaluation cannot build on a solid set of standards that has already been in long-term use.

Against this background, the approach of DECA goes beyond existing approaches – such as the European “Code of Conduct” – different kinds of guidelines or model contracts, which have been developed for many EU countries – by developing a clear and traceable set of quality criteria, assessment criteria, verification routines, and valuation methods. In this way, the approach can be easily transferred into a certification scheme in a next step, where the quality of EES can be evaluated neutrally and objectively by an independent certification body.

Although the process on the DECA quality assurance system is still ongoing and a full certification system is not likely to happen before 2016 the approach as such is unique in Europe and can be seen as trend-setting for similar developments in the European energy service markets.

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