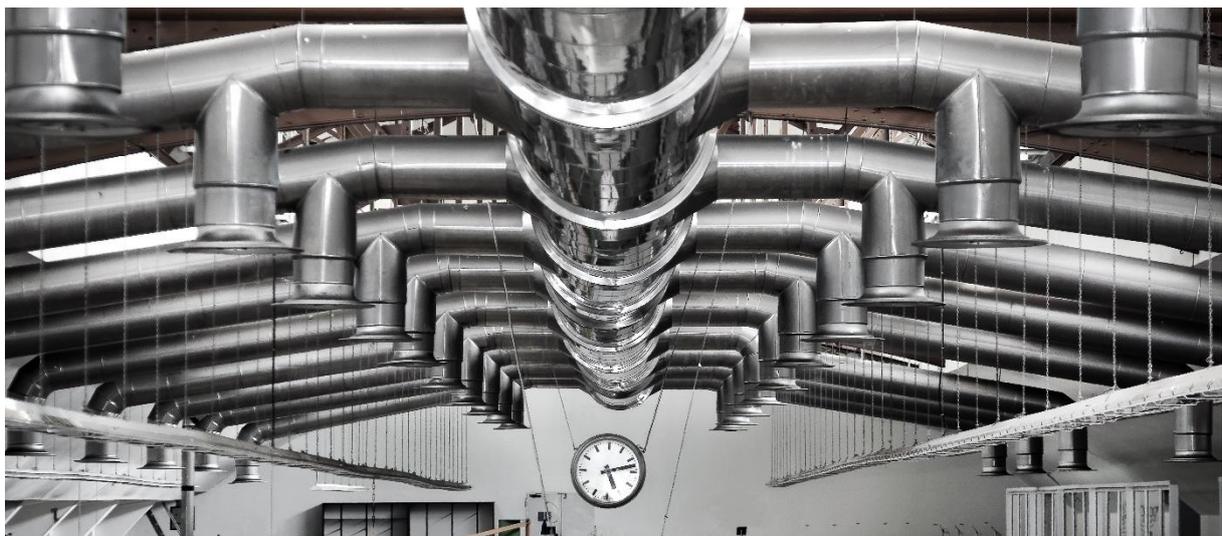


Quality Criteria for Energy Performance Contracting Services



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Background

These quality criteria and assessment guidelines are based on the Guidelines of European Technical Quality Criteria for Energy Efficiency Services developed by the QualitEE project (<https://qualitee.eu/>).

The European quality criteria have been adapted for the UK market by incorporating feedback from stakeholder consultation and testing in pilot projects.

Purpose and uses

These quality criteria aim to address identified market barriers by improving trust, standardisation and the availability of information. They can be used by key stakeholders in the following ways:

Buyers Project, specification and business case development, procurement and contract management.

Energy Services Providers Service development, quality management, customer guidance.

Financial Institutions Investment assessment and management.

These criteria will also be used in a proposed accreditation scheme for Energy Performance Contracting providers to be led by the Energy Services and Technology Association. To maintain accreditation, providers require an operational project (past the first savings verification point) to pass independent audit against these criteria every two years.

Structure

The criteria have been designed to follow the value chain of Energy Performance Contracting Services as outlined below:

QC1	Service Development	The development of an Energy Performance Contracting service requires a combination of technical energy auditing to identify energy efficiency improvement opportunities, and the establishment of a strong business case. The culmination of this process is often referred to as the Investment Grade Proposal.
QC2	Implementation	The implementation of energy efficiency improvement actions may range from 'soft' controls optimisation or application of new energy management processes through to 'hard' construction and installation of new equipment.

QC3	Savings Guarantee	A fundamental aspect of value in Energy Performance Contracting, a robust savings guarantee defines how the service providers remuneration is linked to the level of energy / financial saving performance achieved.
QC4	Performance Measurement	Intrinsically linked to the savings guarantee is a process for measuring the achieved energy / financial saving performance. Often referred to as Measurement & Verification (M&V).
QC5	Operations & Maintenance (optional)	Ensuring persistence of energy efficiency improvement actions requires ongoing operations and maintenance. In some cases, responsibilities are transferred to the client after implementation to incorporate into their existing maintenance regime, hence this criterion is optional. Where this applies, definition of responsibilities, O&M manuals and training are still required, which is covered under QC2.
QC6	Communication	The working relationship between service provider and client is critical to success. It should be based on transparent and regular sharing of information through reporting, meetings and software tools.
QC7	Environmental Conditions	Energy efficiency improvement actions often relate to building services such as lighting, heating and cooling. Where relevant, the required environmental conditions should be agreed and maintained.
QC8	Behaviour Change (optional)	An Energy Performance Contracting service may focus on, or be supplemented by, a behavioural change package that aims to improve energy efficiency through engagement with building users. This is an optional element of value.
QC9	Contractual Terms	A clear and robust contract supports the working relationship. It should cover the nuances of Energy Performance Contracting and be suitable for the long-term nature of such contracts.

Each quality criterion is divided into various assessment areas, each with a set of requirements and assessment guidelines. The structure is as follows:

Assessment Area	Requirements	Assessment	Comment
Which specific aspect of the energy performance contracting service is being assessed?	Which requirements and evidence should the assessor look for to assess the area?	How should the assessor decide whether the evidence collected demonstrates the requirement has been achieved?	Supporting comments to assist the assessor in coming to their conclusion.

QC 1 – Service Development

QC	Assessment Area	Requirements	Assessment	Supporting Comments
1-1	Delivery of an energy auditing process pursuant to relevant standards BS EN 16247-1 or ISO 50002	<p>The following components of the audit process must be implemented:</p> <p>(1) Introductory contact (covering at least; targets, areas of application, thoroughness, timeframe, criteria, availability of data)</p> <p>(2) Opening consultation (covering at least; stipulation of responsible persons at the client organisation, clarification of access, data protection, confidentiality). Also, definition of the scope of services and clarification of key drivers (e.g. energy cost, emissions, building improvement etc.)</p> <p>(3) Identification of existing data and data collection methods</p> <p>(4) On-site visit</p> <p>(5) Analysis (covering at least; breakdown of energy consumption, temporal progression, adaptation factors)</p> <p>(6) Definition of reporting format</p> <p>(7) Final consultation (covering at least; presentation of report)</p>	<p><u>ex-ante</u>: Was the audit agreed in accordance with the standard?</p> <p><u>ex-post</u>: Does the final audit report demonstrate the process has been adequately followed?</p> <p>Pursuant to the standard the process must be:</p> <p>(1) adequate, (2) complete, (3) representative, (4) traceable, (5) expedient and (6) verifiable</p>	<p>Justification shall be provided if a component of the audit process is not fulfilled (e.g. an unfavourable cost-benefit of the component)</p> <p>All specifications shall be discussed with the client and agreed in writing.</p>

QC	Assessment Area	Requirements	Assessment	Supporting Comments
1-2	Adequate data collection and analysis	<p>The following requirements must be met:</p> <p>(1) All relevant energy consuming areas shall be captured and presented in the form of an energy breakdown calibrated against measured energy use.</p> <p>(2) Data analysed and presented as load profiles (development of energy consumption over time)</p> <p>(3) Specification of target values relevant for energy consuming areas and other parameters (e.g. temperatures, air quality, light levels etc.)</p> <p>(4) Energy consumption benchmarks shall be specified and used for all relevant energy consuming areas</p> <p>(5) Interdependencies must be duly taken into consideration</p> <p>(6) Factors influencing energy consumption (such as whether conditions, occupancy, output volumes etc.) shall be defined, approved by the client and worked into the baseline</p> <p>(7) Review of asset strategy to assess likely future usage – are any changes planned?</p>	<p><u>ex-ante</u>: Was compliance with the requirements stated agreed?</p> <p><u>ex-post</u>: Does the final audit report demonstrate that the requirements have been met?</p>	<p>Justification shall be provided where specific energy-consuming areas are not analysed (e.g. negligible share of overall energy consumption).</p>

QC	Assessment Area	Requirements	Assessment	Supporting Comments
1-3	Adequacy of the derivation of recommended energy efficiency improvement actions	<p>The following requirements must be met:</p> <ul style="list-style-type: none"> (1) Recommended actions to be ranked based on their energy saving potential and economic feasibility (ROI). (2) Whole life-cycle cost analysis to be carried out (including consideration of residual values) (3) The basis of calculation for the economic feasibility analysis shall be agreed with the client and documented transparently (i.e. interest and discount rates, projections of energy price increases etc.). (4) Sensitivity analysis to be conducted (5) Comparison of the current systems with the most efficient technology in the market (6) Assessment of availability of financial support through public programmes (7) Consideration of key risks for identified actions and establishment of a risk register (covering for example planning, asbestos, business continuity risks etc.) (8) Costing of sub-contracted services and equipment to be justified or competitively tendered where of high value. 	<p><u>ex-ante</u>: Was compliance with the requirements stated agreed?</p> <p><u>ex-post</u>: Does the final audit report demonstrate that the requirements have been met?</p> <p>In the process, the following shall be checked for the individual actions proposed:</p> <p>proportionality of the energy savings from proposed actions related to the overall amount of energy consumption</p> <p>representativeness, i.e. that the savings levels proposed are reasonable when compared to similar projects</p> <p>realistic assumptions are used in calculation of energy savings from the action</p>	<p>If a sensitivity analysis is contractually obligated, the parameters of the sensitivity analysis shall be agreed with the client.</p> <p>The use of dynamic modelling software can be helpful in some areas (e.g. heat modelling), however it is not stipulated as a requirement as it can add unnecessary cost. Where dynamic modelling is used the qualifications and experience of the operator should be assessed, along with the quality / accuracy of input data.</p>

QC 2 – Implementation

QC	Assessment Area	Requirements	Assessment	Supporting Comments
2-1	Performance of implementation services in accordance with applicable standards, statutes and official permits	<p>Compliance with the relevant technical standards covering at least:</p> <p>(1) General provisions for construction services</p> <p>(2) Individual technical standards for those technical systems that are improved by the services</p> <p>(3) Compliance with official permits that are relevant for the implementation (e.g. planning requirements)</p>	<p><u>ex-ante:</u></p> <p>(1) Does the Contract commit the service provider to comply with the requirements, along with official permits and statutory conditions applicable to the object?</p> <p>(2) Does the Contract commit the service provider to verify the official permits applicable to the object with respect to their relevance to the services?</p> <p><u>ex-post:</u> Were the standards, statutory conditions and official permits complied with when implementing the services?</p>	<p>A complete, exhaustive list of standards is not provided here due to the variety of potential services.</p> <p>Where the client’s standards deviate from published standards this should be clearly defined and agreed. In many cases these will be more stringent, but in some cases, it may be agreed to lower standards through a derogation list. For example, an energy efficiency project may only be financially feasible where like for like replacement is considered, even if the final works do not achieve published standards.</p>
2-2	On-schedule delivery	<p>(1) Stipulation of implementation programme, agreed with the client</p> <p>(2) Compliance with the stipulated implementation programme</p> <p>(3) Processes for the adjustment of schedules shall be clarified with the client and contractually agreed</p>	<p><u>ex-ante:</u> Does the Contract contain either a fixed programme or a process that defines how the service provider will agree the programme with the client?</p> <p><u>ex-post:</u> Was the agreed programme complied with?</p>	<p>The implementation programme must be supported by adequate and competent personnel resources.</p> <p>The effects on business continuity should be considered and the programme agreed in light of these.</p>

QC	Assessment Area	Requirements	Assessment	Supporting Comments
2-3	Commissioning of services	<p>A process for the commissioning of services (e.g. testing methods, minimum requirements to pass commissioning, records of acceptance etc.)</p> <p>Clear definition of the process for sign-off of completion that triggers the guarantee monitoring period (where applicable).</p>	<p><u>ex-ante</u>: Does the Contract contain a commitment to carry out commissioning of services, and definition of the commissioning process?</p> <p><u>ex-post</u>: Was the agreed process carried out?</p>	<p>Certain technologies and services will have defined commissioning standards. These should be used where applicable, or justification provided for other approaches taken.</p>
2-4	Induction of users or operating personnel	<p>A process for the training of users and handover of implemented technologies and services.</p>	<p><u>ex-ante</u>: Does the Contract contain a plan for the induction of users?</p> <p><u>ex-post</u>: Was the agreed plan complied with?</p>	
2-5	Ensuring the functionality of newly installed technologies and services	<p>The following actions shall be taken:</p> <p>Definition of which party holds maintenance responsibilities for each component of the implemented technologies and services; the service provider or the client</p> <p>Definition and documentation of operations and maintenance information and requirements (i.e. O&M manuals)</p> <p>Commitment to the availability of spare parts and the required software over a fixed minimum period of time</p> <p>Stipulation of warranty conditions, periods and contacts.</p>	<p><u>ex-ante</u>: Does the Contract contain the requirements?</p> <p><u>ex-post</u>: Were the requirements complied with?</p>	

QC	Assessment Area	Requirements	Assessment	Supporting Comments
2-6	Health & Safety	<p>(1) Definition of health and safety requirements.</p> <p>(2) Assessment of health and safety risks, and mitigation approaches (e.g. risk and method statements)</p> <p>(3) Where applicable, the Construction Design & Management Regulations 2015 shall be complied with.</p>	<p><u>ex-ante</u>: Does the Contract contain definition of health and safety requirements? Has risk assessment been carried out, processes for mitigation defined and documented?</p> <p><u>ex-post</u>: Were the requirements and processes complied with?</p>	
2-7	Subcontractor selection and management	Transparent processes for subcontractor selection and management	<p><u>ex-ante</u>: Does the services provider have a robust subcontractor selection and management plan?</p> <p><u>ex-post</u>: Was the plan followed?</p>	

QC 3 – Savings Guarantee

QC	Assessment Area	Requirements	Assessment	Supporting Comments
3-1	Dependency of remuneration on the level of delivered energy savings	<p><u>Savings guarantee type 1 (guaranteed savings)</u>: The reduction of remuneration must be, at least, commensurate with the level of the non-attainment of a guaranteed energy savings.</p> <p><u>Savings guarantee type 2 (shared savings)</u>: The achieved savings will be shared between the service provider and the client in a defined proportion.</p> <p><u>Savings guarantee type 3 (performance retention)</u>: For design & build projects focussed on one-off implementation of retrofit opportunities rather than ongoing management. An agreed % of the contract value is retained until it can be proven that the guaranteed savings have been achieved. The reconciliation period is typically limited to 12 months after completion of the implementation.</p>	Does the Contract contain terms that transparently describe one of the savings guarantee types in the column to the left? Is it clear how the savings guarantee and payment mechanism operates?	In some cases, a contract may be agreed with a combination of types 1 & 2 where guaranteed level is agreed, and beyond that level the surplus savings are shared.

QC	Assessment Area	Requirements	Assessment	Supporting Comments
3-2	Guaranteed savings achieved (only applicable to savings guarantee types 1 & 3)	<p>Achieved savings are not lower than guaranteed savings. The following levels of deviations are applicable:</p> <p><u>Minor deviation</u>: achieved savings are lower than 100% of guaranteed savings and higher or equal to 95%</p> <p><u>Serious deviation</u>: achieved savings are lower than 95% of guaranteed savings and higher or equal to 80%</p> <p><u>Unacceptable deviation</u>: achieved savings are lower than 80% of guaranteed savings</p>	<p>The verification of this criterion can only be completed ex-post:</p> <p>Compare the amount of achieved savings reported with the guaranteed savings stated in the Contract.</p>	<p>It is always preferable that the guaranteed savings are exceeded, however the assessment of this criterion can be considered positive where the service provider honours its obligations under the savings guarantee (i.e. makes the necessary repayment)</p>
3-3	Regular intervals for reconciliation of the savings guarantee	Savings verification and reconciliation at least once every 12 months.	<p><u>ex-ante</u>: Is the requirement enshrined in the Contract?</p> <p><u>ex-post</u>: Were the agreed intervals complied with?</p>	

QC 4 – Performance Measurement

QC	Assessment Area	Requirements	Assessment	Supporting Comments
4-1	Application of a standardised method for the measurement (M&V) of energy-savings	<p>Application of one of the two standardised methods:</p> <p>(1) The International Performance Measurement and Verification Protocol (IPMVP)</p> <p>(2) ISO 50015:2014</p>	<p><u>ex-ante</u>: Is the application of the selected standards stipulated in the Contract? Is it stipulated precisely which of the approaches specified in the standards should be adopted?</p> <p><u>ex-post</u>: Was verification of the energy saving carried out in accordance with the stipulated approach?</p>	<p>Since IPMVP and ISO 50015 only offer a methodical framework, it is recommended to detail the specific method of verification for the service in question, as well as the timing of M&V activities, specification of calculation algorithms, and M&V responsibilities. (e.g. agreement of a project specific M&V Plan as an appendix to the Contract)</p>
4-2	Selection of the most appropriate approach to the verification of energy savings	<p>Justification for the selection of M&V approaches. Presentation of the benefits and limitations of the selected approach as compared with possible alternatives.</p> <p>Agreement between service provider and client.</p>	<p>Availability of justification at the time of signing the Contract (ex-ante)</p>	<p>Approaches based on measurement methods are always preferred. However, where these are not possible (due to practical or accuracy limitations) and/or not economically feasible (costs are a high portion of expected financial savings), engineering calculations may be agreed. These cases should be limited as far as possible, justified and agreed.</p>

QC	Assessment Area	Requirements	Assessment	Supporting Comments
4-3	Clear definition of the baseline (reference consumption)	<p>Determination of a baseline based on a detailed assessment of baseline data</p> <p>Collection of baseline energy consumption data and analysis to ensure it is representative of expected future trends (no anomalies or missing data)</p> <p>Collection of information and data on baseline conditions relevant to the services (e.g. heated floor areas, operating hours, temperature set points). In particular any environmental underperformance to be corrected by the service (e.g. underheated, underlit areas etc.)</p>	<p><u>ex-ante</u>: Is the baseline, against which energy savings will be verified, defined, justified and agreed between contracting parties?</p> <p><u>ex-post</u>: Has the agreed baseline been used for the verification of energy savings?</p>	<p>The baseline needs to be defined before the service implementation commences. This is particularly important for those projects where verification is based on measured energy consumption, but also for projects, where an engineering calculation or expert estimation of energy savings is justified (considering QC 4-2).</p>

QC	Assessment Area	Requirements	Assessment	Supporting Comments
4-4	Clear definition of the basis of adjustment of the energy savings calculation	<p>Determination of a clearly defined adjustment methodology including:</p> <ul style="list-style-type: none"> (1) transparent assessment of factors affecting energy consumption (2) presentation of specific adjustment equations (3) specification of required data and information (4) evaluation of accuracy of proposed methodology compared to the magnitude of savings 	<p><u>ex-ante</u>: Is a specific adjustment methodology agreed between contracting parties? Has an evaluation been carried out that demonstrates that influencing factors are adequately accounted for, and based on historic data, in the agreed adjustment methodology? Has the accuracy of the proposed methodology been evaluated against the expected size of savings, and is the error small in comparison?</p> <p><u>ex-post</u>: Has savings verification been carried out in accordance with specific methodologies? Is there documentation of all evidence for adjustment process, and is there evidence of agreement between parties for any adjustments not stipulated in the adjustment methodology and equations (non-routine events)</p>	<p>Adjustment of measured energy data is needed to “filter out” those influencing factors on energy consumption that are not resulting from the services provided (typically related to weather and usage conditions).</p> <p>The use of specific adjustment equations must be justified through analysis of historic data (e.g. Is the share of weather-independent heat consumption justified based on an adequate assessment of historic consumption patterns? This is often achieved using regression analysis).</p> <p>Energy savings verification based on engineering calculation usually do not require adjustment.</p> <p>With respect to accuracy of the proposed methodology it is required that the error in the method should be small in comparison to the size of the savings to be measured.</p>

QC	Assessment Area	Requirements	Assessment	Supporting Comments
4-5	Transparency and agreement of M&V processes and related responsibilities	<p>Agreement of the procedure for the implementation of M&V (i.e. agreement of the M&V Plan)</p> <p>Agreement of the reporting format that provides clear and useful information to stakeholders.</p>	<p><u>ex-ante</u>: Documentation or sign off that demonstrates that the client has understood the verification approach and related responsibilities</p> <p><u>ex-post</u>: M&V has been implemented in accordance with the agreed M&V processes; decisions and agreements between contractual parties relating to M&V are documented and signed-off</p>	M&V is not just related to the calculation of energy savings but refers also to the fulfilment of defined procedures and responsibilities.

QC 5 – Operations & Maintenance

QC	Assessment Area	Requirements	Assessment	Supporting Comments
5-1	System availability (Optional – only where the service provider has operations and maintenance responsibility)	Recording of operating times and downtimes Specification of minimum system availability requirements Definition and agreement of downtimes for pre-planned maintenance.	<u>ex-ante</u> : Are the requirements enshrined in the Contract? <u>ex-post</u> : Are there records of operating times and downtimes? Have minimum availability requirements and planned downtimes been achieved?	
5-2	Rapid troubleshooting	Definition of process and timescales for registration and remedy of faults. Documentation of fault records.	<u>ex-ante</u> : Are the process and timescales defined in the Contract? <u>ex-post</u> : Availability of fault records. Has the process been followed and have agreed timescales been met?	

QC	Assessment Area	Requirements	Assessment	Supporting Comments
5-3	Functionality of equipment (subject to the services) at the end of the Contract	<p>The following actions must be performed throughout the Contract:</p> <ul style="list-style-type: none"> (1) management of maintenance programme (2) replacement of system components with respect to quality and cost considerations (3) Documentation of defects and their correction <p>The following measures must be executed at the end of the Contract in accordance with relevant standards:</p> <ul style="list-style-type: none"> (1) Visual check, verification of proper function (2) Verification of system test logs (3) Training, handover and presentation of O&M manuals as per QC 2-5 	<p><u>ex-ante</u>: Are the obligations adequately defined in the Contract?</p> <p><u>ex-post</u>: Can documentation be provided that shows that obligations have been met?</p>	<p>VDMA 24186 (Maintenance of technical building systems, Parts 0 to 7) is one example of a pre-defined standard on maintenance of building systems. It describes the service program for the maintenance of technical facilities and equipment in buildings.</p>
5-4	Clear definition of responsibilities of the service provider and client with respect to maintenance and repair	Contractual stipulations that define the duties of the service provider and client with respect to maintenance and repair; illustration of interfaces in a system diagram and potentially through labelling of equipment on site.	Is this requirement adequately defined in the Contract?	

QC 6 – Communication

QC	Assessment Area	Requirements	Assessment	Supporting Comments
6-1	Disclosure of personnel and organisation structure	<p>Documentation of key personnel at both the service provider and client, description of their roles and organisation structure, including definition of escalation process for issues.</p> <p>Defined process for changes in key personnel including handover process and communication of changes to all relevant stakeholders.</p>	<p><u>ex-ante</u>: Are key personnel and roles included in a document related to the Contract? Are there sufficient personnel resources for the successful delivery of the service.</p> <p><u>ex-post</u>: Were changes to key personnel documented and adequately communicated to relevant stakeholders.</p>	Documentation of key personnel and their roles may be directly in the Contract or in a project manual.
6-2	Agreement on accessibility of data and data exchange (in both directions)	<p>Contractual stipulations defining mutual access to data, which is required for delivery of the services</p> <p>Availability of a process or tool, with which simple data exchange can be ensured</p>	<p><u>ex-ante</u>: Is data access and exchange contractually agreed? Does the Contract foresee the application of a specific process or tool for data exchange?</p> <p><u>ex-post</u>: Verification of satisfaction with data exchange; usage of the tool in practice</p>	Service providers may establish online energy monitoring platforms, or online document sharing platforms for data exchange.

QC	Assessment Area	Requirements	Assessment	Supporting Comments
6-3	Progress reporting and change management	<p>Availability of a process, tool or report that clearly defines the status of implementation of services.</p> <p>A process for change management that allows the parties to propose changes to the scope of services (including the addition of further energy efficiency improvement actions), form agreement and document the effects on the Contract.</p>	<p><u>ex-ante</u>: Are regular status reporting and change management procedures defined in the Contract?</p> <p><u>ex-post</u>: Have agreed reports and procedures been followed in practice?</p>	Clear change management procedures are critical to successful long-term services as it is common that the scope of services will change during implementation and delivery. Specifically to EPC, documentation on changes must define the effects on service costs and guaranteed savings level.
6-4	Regular communication, meetings and team organisation.	<p>Stipulation of procedures that will facilitate the continuous exchange of information between the service provider and client to ensure the needs of both parties are met and to facilitate expedient problem solving (i.e. regular meetings and direct contact).</p> <p>Definition of communication lines and processes at all levels to ensure efficient communication and decision making.</p>	<p><u>ex-ante</u>: Have regular reporting procedures and meetings been established along with direct communication lines between personnel / groups that need to work together?</p> <p><u>ex-post</u>: Were the reporting processes and meetings conducted effectively?</p>	In addition to the collection of data and information in reporting, direct communication between the representatives of the service provider and client is necessary since this is the only channel through which problems can be resolved expediently.
6-5	Stakeholder Management (optional)	A process for communication of information relating to the services to internal and external stakeholders.	<p><u>ex-ante</u>: was a communication plan agreed?</p> <p><u>ex-ante</u>: was the plan followed? Were relevant stakeholders well informed?</p>	Where the services affect building users or stakeholders outside the core project team it is important to offer regular information on what is happening, when and benefits to maintain a positive view of the project / services.

QC 7 – Environmental Conditions

QC	Assessment Area	Requirements	Assessment	Supporting Comments
7-1	Definition of requirements for environmental conditions (including regular review)	<p>Where the services affect environmental conditions, requirements shall be recorded including but not limited to:</p> <ul style="list-style-type: none"> (1) Room temperature (2) Humidity (typically only for specialist facilities such as laboratories, data centres and hospitals) (3) Air change rate (or other indoor air quality parameters such as CO₂ content) (4) Sound level (inside, outside) (5) Illumination levels (6) Water temperature (with due consideration of the issue of legionella) (7) Operating hours (covering also non-operating hours, holidays, vacations etc.) <p>Requirements should be reviewed regularly in line with service progress reporting.</p>	<p><u>ex-ante</u>: Is there a contractual regulation that defines required environmental conditions?</p> <p><u>ex-post</u>: Were the required environmental conditions regularly reviewed.</p>	<p>Baseline conditions must be recorded (ideally based on measurement) as defined in QC 4-3.</p> <p>Where requirements are changed during the service delivery, this will likely have an impact on the energy savings. Therefore, the parties must agree appropriate adjustments to the performance reporting or guarantee level.</p> <p>Requirements should consider relevant standards, however – as outlined in QC 2-1 – the requirement may, in some cases, be agreed to deviate from these standards to ensure a financially feasible energy efficiency investment. i.e. existing environmental conditions may be met rather than improving to relevant standards.</p>
7-2	Regular verification of compliance with environmental conditions	The following actions shall be implemented:	<u>ex-ante</u> : Availability of contractual stipulations regarding measurement of environmental	

QC	Assessment Area	Requirements	Assessment	Supporting Comments
		<p>Definition of requirements for measurement of environmental conditions.</p> <p>Regular reporting of environmental conditions.</p> <p>Corrective actions to ensure compliance with required conditions.</p>	<p>conditions and corrective actions in case of non-compliance</p> <p><u>ex-post</u>: Execution of contractual stipulations in practice</p>	
7-3	Assessment of users' satisfaction (optional)	<p>One of the following two measures must be implemented:</p> <p>Taking surveys of a statistically representative sample of users (at least once a year)</p> <p>Regular consultations with users (from all relevant usage zones, at least once each year)</p>	<p><u>ex-ante</u>: Availability of contractual stipulations regarding the process of capturing users' satisfaction</p> <p><u>ex-post</u>: Execution of contractual stipulations in practice</p>	<p>In practice, taking surveys of users has recently become more streamlined because web-based survey tools are available.</p> <p>It is recommended to assess users' satisfaction before the service is implemented, so that any changes users' satisfaction can be attributed to the services.</p> <p>This assessment area is considered optional as the feedback of users is subjective and may have ulterior motives. Therefore, it may not be suitable for assessment of performance under a Contract unless specifically required by the client.</p>

QC 8 – Behaviour Change

QC	Assessment Area	Requirements	Assessment	Supporting Comments
8-1	Development of a concept for behavioural change	Availability of a concept that clearly differentiates between various user groups. In differentiating user groups, it is important to consider their relevant interests, duties and level of influence on energy consumption (i.e. have they got permission / access to controls to make changes) when designing the most appropriate engagement approach.	Availability of a documented concept that adequately addresses the requirements.	
8-2	Establishment of a scheme to collect users suggestions on how to improve energy efficiency	Availability of a suggestion scheme to facilitate the transmission of users' proposals to the services provider. Availability of a feedback process to the users.	<u>ex-ante</u> : Is there an obligation for the service provider to establish a suggestion scheme and are there procedures for processing such suggestions? <u>ex-post</u> : Was the scheme established and used effectively?	
8-3	Provision of action-oriented information on the energy efficiency	Availability of information on specific energy saving actions that can be implemented by the various user groups. Performance / progress reporting to provide feedback.	<u>ex-ante</u> : Is there an obligation for the service provider to offer action-oriented information and reporting? <u>ex-post</u> : Evidence of implementation during the term of the Contract.	The delivery of information may include written or interactive materials, online training or seminars / workshops in person.

QC 9 – Contractual Terms

QC	Assessment Area	Requirements	Example contractual drafting / comment
9-1	Ownership transfer	Availability of clear contractual terms that define the regulations relating to ownership transfer.	<i>“Once the Contract is concluded, the CLIENT will have the option to acquire the equipment for a residual value detailed in point (___) of section (___) of this contract, provided the terms of the contract have been fulfilled and all payments have been made.”</i>
9-2	Handling of energy price risk	Availability of clear contractual terms that define the regulations relating to energy price risk	<p>In the UK the majority of Energy Performance Contracts fix the energy prices based on baseline prices, and in some cases agree fixed inflation rates. However, the following drafting can be considered where the service provider takes on a level of energy price risk.</p> <p><i>“The economic savings will be calculated for each of the liquidation periods (every (___) months), based on the energy savings verified, multiplied by the average invoice price of electricity (or other kind of energy) in the year for the installation subject of reference. If the average price has changed from the previous year above (___) or below (___), the values of (___) and (___) of the reference price of the previous year will be taken for the calculation of the economic saving.”</i></p>
9-3	Insurances	Availability of clear contractual terms that define the regulations relating to insurances.	<p>The assessor should consider the following in relation to insurances:</p> <ul style="list-style-type: none"> (1) have the requirements for public, employers and professional liability insurance been defined? (2) are sufficient guarantees (such as parent company guarantees) or insurance products in place to cover any defaults (3) are the (extended) warranties on technologies commensurate to the service duration or financial payback period?

QC	Assessment Area	Requirements	Example contractual drafting / comment
9-4	Exit regulations	Availability of clear contractual terms that define the regulations relating to exiting the Contract.	<p><i>"The contract will have a duration of (___) and may be terminated upon prior notice by either party, in advance of (___) with no need to plead any cause.</i></p> <p><i>In case the contract is terminated by the CLIENT before half the duration of the contract has elapsed, the CLIENT shall pay to (___) (___) of the outstanding amounts, estimated from the settlements made until the date.</i></p> <p><i>If half of the duration of the contract has already elapsed and the CLIENT terminates the contract before its completion, the CLIENT must pay to (___) (___) of the outstanding amounts, estimated from the settlements made to date."</i></p>
9-5	Legal succession	Availability of clear contractual terms that define the regulations relating to legal succession and assignment.	<p><i>"(___) may assign all of the rights and obligations arising from this contract to a third party without the prior consent of the CLIENT, provided that the conditions of the same are maintained unchanged. (___) shall inform the (CLIENT) duly and in writing about the rights and obligations transfer."</i></p>
9-6	Access rights	Availability of clear contractual terms that define the regulations relating to access rights.	<p><i>"The CLIENT will allow (___) personnel to access the facilities whenever necessary for reasons of maintenance and control of the service, installation or performance optimisation of the equipment."</i></p>
9-7	Permissibility of different types of financing (cession, leasing, forfeiting)	Availability of clear contractual terms that define the regulations relating to financing permissions.	<p>It is advisable to include a contractual stipulation which outlines the permissions for different financing methods that may be incurred, since some of these methods may have direct influence on the client.</p>

QC	Assessment Area	Requirements	Example contractual drafting / comment
9-8	Intellectual property rights	Availability of clear contractual terms that define the regulations relating to intellectual property rights.	<i>“All information exchanged between the parties is the exclusive property of the party which supplied it. The exchange of information does not imply the assignment or transfer of any right of use or disposition to the other party. Neither party will use the information provided by the other party as its own unless expressly authorized in writing. The use of such information is restricted for the proper development of this service.”</i>

Appendix – Worked Examples

This section provides worked examples of an Auditor’s assessment for three of the Assessment Areas, detailing the documentation reviewed and how it demonstrates that each of the requirements has been met.

QC	Assessment Area	Requirements	Auditor’s Assessment (referencing Reviewed Documentation)
1-2	Adequate data collection and analysis	<p>The following requirements must be met:</p> <ul style="list-style-type: none"> (1) All relevant energy consuming areas shall be captured and presented in the form of an energy breakdown calibrated against measured energy use. (2) Data analysed and presented as load profiles (development of energy consumption over time) (3) Specification of target values relevant for energy consuming areas and other parameters (e.g. temperatures, air quality, light levels etc.) (4) Energy consumption benchmarks shall be specified and used for all relevant energy consuming areas (5) Interdependencies must be duly taken into consideration (6) Factors influencing energy consumption (such as whether conditions, occupancy, output volumes etc.) shall be defined, approved by the client and worked into the baseline 	<ul style="list-style-type: none"> (1) Breakdown of site energy usage per energy consuming area (lighting, HVAC etc.) presented in Investment Grade Proposal (IGP) section 2.3. (2) IGP section 2.2 gives average weekly profiles and annual gas profiles with degree day analysis. (3) IGP section 2.1 details baseline occupancy times. IGP section 3.3 details that internal environmental conditions will achieve industry standards set out in CIBSE guide A. Specific standards also given e.g. Lighting – 3.2 defines expected standards for pre replacement lighting (BS EN 12464-1:2011) and commits the Service Provider to meet or improve on these standards (4) IGP section 2.4 compares to CIBSE guide F benchmarks. Detail in project proposals highlights specific benchmarks - e.g. 3.3 compares pool temperatures against CIBSE guidelines. (5) Each project listed in section 3 of the IGP has specific assessment of interactivity. e.g. section 3.4 gives a detailed analysis of interactions as other proposed projects affect the likelihood of export of the Solar PV. (6) IGP section 2.2 initially covers degree day analysis for gas consumption. The M&V Plan provides more detailed baseline assessment against driving factors. Degree days and daylight minutes variables have been worked into the baselines.

QC	Assessment Area	Requirements	Auditor's Assessment (referencing Reviewed Documentation)
		(7) Review of asset strategy to assess likely future usage – are any changes planned?	(7) IGP section 2.4 presents analysis of future asset strategy and how this affects each of the proposed projects. E.g. the Combined Heat & Power unit is proposed to be de-rated as part of the site is earmarked for closure.
2-2	On-schedule delivery	<p>(1) Stipulation of implementation programme, agreed with the client</p> <p>(2) Compliance with the stipulated implementation programme</p> <p>(3) Processes for the adjustment of schedules shall be clarified with the client and contractually agreed</p>	<p><u>ex-ante:</u> Clause 10 of the Energy Performance Contract commits the Service Provider to a delivery programme and completion date. Schedule 5 contains a detailed programme in the form of a Gantt chart. Clauses 10.3, 10.5 & 10.6 deal with adjustment to the programme and this references a detailed review procedure as set out in Schedule 6.</p> <p><u>ex-post:</u> The Programme in Schedule 5 details completion on 15th October 2019. The practical completion certificate states a completion was agreed on 4th October 2019. I couldn't find any evidence if early completion conditions (14.5 & 14.6 of contract) were executed.</p>
6-4	Regular communication, meetings and team organisation.	<p>Stipulation of procedures that will facilitate the continuous exchange of information between the service provider and client to ensure the needs of both parties are met and to facilitate expedient problem solving (i.e. regular meetings and direct contact).</p> <p>Definition of communication lines and processes at all levels to ensure efficient communication and decision making.</p>	<p><u>ex-ante:</u> The Energy Performance Contract clause 12.2.1 commits the Contractor to regular site meetings during construction. 27.2.1 requires meetings to discuss changes.</p> <p>The Project Implementation Plan commits the Service Provider to weekly reporting, monthly formal reporting and ad hoc meetings or calls. It also defines the personnel, team structure and key interfaces between Service Provider and Client.</p> <p><u>ex-post:</u> The Service Provider has demonstrated high levels of communication during the project delivery. An online document management tool has been used for data sharing. There is evidence of monthly progress reports during construction and minutes of site meetings.</p>