



# COMMERCIAL ENERGY CERTIFICATE REGISTER & ASSOCIATED SERVICES

## (Procurement Reference: CPD004\078\026)

## Services Requirements Specification

# Table of Contents

## GLOSSARY & ACRONYMS

The Glossary contains the terms and acronyms used within this document whose definitions and meanings are defined elsewhere.

| Term | Meaning |
|---|---|
| Accreditation Scheme (AS) | An organisation responsible for accrediting that an Energy Assessor is qualified, "fit & proper" and insured to carry out an energy assessment and generate Energy Documents. |
| Advisory Report (AR) | Produced by the Energy Assessor and provides recommendations for improvement of the energy performance of larger public buildings. It is associated with the Display Energy Certificate. However, whereas the Display Energy Certificate is produced annually, the Advisory Report has a validity of seven years. |
| Commercial Energy Certificate Register (CECR) | Central Archive of all registered (i.e. authentic) CEPCs, DECs, Recommendation Reports, Advisory Reports and Model Data. |
| Commercial Energy Certificate Register Operator (CECR Operator) | The organisation managing the Commercial Energy Certificate Register and providing associated services on behalf of CLG. The subject of this document. |
| Commercial Energy Performance Certificate (CEPC) | The Energy Performance of Buildings Regulations require that a valid Commercial Energy Performance Certificate be produced for all non-dwellings on construction, sale or rent. It provides a rating of the energy performance of the building. It has a lifetime of 10 years unless a new Commercial Energy Performance Certificate is obtained. |
| Database of Record | In a distributed and replicated environment the Database of Record is the repository designated as the definitive copy of data that is regarded as authoritative in the case where any doubt is expressed over the authenticity of the data. It is also the point from which any replicated copies can be restored from. |
| Display Energy Certificate (DEC) | The Energy Performance of Buildings Regulations requires that a valid Display Energy Performance Certificate be displayed in larger public buildings which highlight the energy performance of the building. The Certificate has a validity period of 12 months and a new Certificate needs to be produced and lodged annually. |
| Energy Assessor (EA) | A person that has been accredited by an Accreditation Scheme as being able to carry out an energy assessment. |
| Energy Documents | Energy Documents are made up of the Commercial Energy Performance Certificate, Display Energy Certificate, Recommendation Report and Advisory Report. |
| Functional Role | A named group of users that perform a set role within a given environment with responsibility for carrying out a pre-defined set of operations. |
| Model Data | Covers both the input data to the calculation tools and the output data used to prepare the Energy Documents. |
| Recommendation Report (RR) | Produced by the Energy Assessor and provides recommendations for improvement of the energy performance of buildings. It always accompanies a Commercial Energy Performance Certificate and has a lifetime of 10 years unless a new Commercial Energy Performance Certificate is obtained. |
| Registered User | A known user that needs to be pre-registered to perform a particular Functional Role and can invoke the restricted services authorised for that role. |
| Report Reference | Every document that is lodged should have a unique report reference |

| | |
|---|---|
| Number (RRN) | number. The same number should be used for CEPCs and RRs issued together. DECs and ARs should have separate reference numbers. The Report reference number generated by the CECR should be unique and distinct from that used by the HCR Register operated by Landmark to avoid the risk of any duplication of RRN's across the CECR and the HCR Register. |
| Unique Property Reference Number (UPRN) | Unique Property Reference Number that uniquely identifies every usable property that is not a dwelling in England & Wales. This includes floors within a building, multiple buildings on shared land etc. The UPRN is generated by the CECR. |
| Unregistered User | Any anonymous consumer such as the Property Seller, Landlords, potential Property Buyer who can access Energy Documents through providing the Report Reference Number and without have to pre-register their identity or be authenticated. They can also access any document of the same kind relating to the same UPRN as the requested document, which was registered at any time during the period of 10 years ending on the date of the request |

| Acronym | Meaning |
|---|---|
| AR | Advisory Report |
| AS | Accreditation Scheme |
| CECR | Commercial Energy Certificate Register |
| CEPC | Commercial Energy Performance Certificate |
| CIP | Central Information Point |
| CLG | Communities and Local Government |
| DEC | Display Energy Certificate |
| EA | Energy Assessor |
| HCR | Home Condition Report |
| PDF | Portable Document Format |
| RR | Recommendation Report |
| RRN | Report Reference Number |
| UPRN | Unique Property Reference Number |
| URL | Universal Resource Locator |
| XML | Extensible Mark-up Language |
| XSD | XML Schema Definition |

# PART A – SETTING THE SCENE

## 1 INTRODUCTION

The purpose of the Output based specification for the CECR system is:

1. To identify and document the high level business requirements that will enable Communities and Local Government (CLG) to meet its objectives and fulfil the key requirements of the Energy Performance of Buildings (England and Wales) Regulations 2007. These requirements have been split into a set of core requirements and those that are possible additions or opportunities.
2. To provide potential IT software suppliers/operators with sufficient information for tendering process with respect to the IT system specifications and technical standards.

The CECR will maintain one or more electronic registers ('archives') of Energy Documents for non-dwellings and larger public buildings.

## 2 BACKGROUND

The Energy Performance of Buildings Regulations 2007 has been introduced in England and Wales to help implement the EC Energy Performance of Buildings Directive.

Two key requirements in these Regulations are as follows.

- From 6th April 2008, all non-dwellings on construction, sale and rent will require a Commercial Energy Performance Certificate (CEPC) and a Recommendation Report (RR). This information will help owners and occupiers make their building more energy efficient and allow potential buyers and tenants to compare the energy performance of different buildings.
- By 6th April 2008, all larger public buildings will require an annual Display Energy Certificate (DEC) highlighting their energy performance. This is to be displayed prominently in a place visible to the public. These buildings will also require an Advisory Report (AR) providing recommendations for energy improvements each seven years.

All energy assessments will be undertaken by EAs. These EAs will need to be members of an approved Accreditation Scheme.

A copy of all the Energy Documents will be maintained on one or more central registers. Whenever an EA issues any of these documents, they must ensure that it, and the data that was entered into the energy model to produce it, is entered onto the relevant register. This will be done either through the Accreditation Scheme or directly into the central registers by the EA.

The central registers have a number of key uses, including:

(i) ensure the authenticity of the Energy Certificate, so that it can and will be trusted by those entitled to rely on it, i.e. buyers and tenants as well as the owner or landlord who procures it,

(ii) generate energy benchmarks for future Energy Documents

(iii) aid enforcement agencies in carrying out their duties

(iv) help monitor implementation of the Regulations, and

(v) inform development of Government policy.

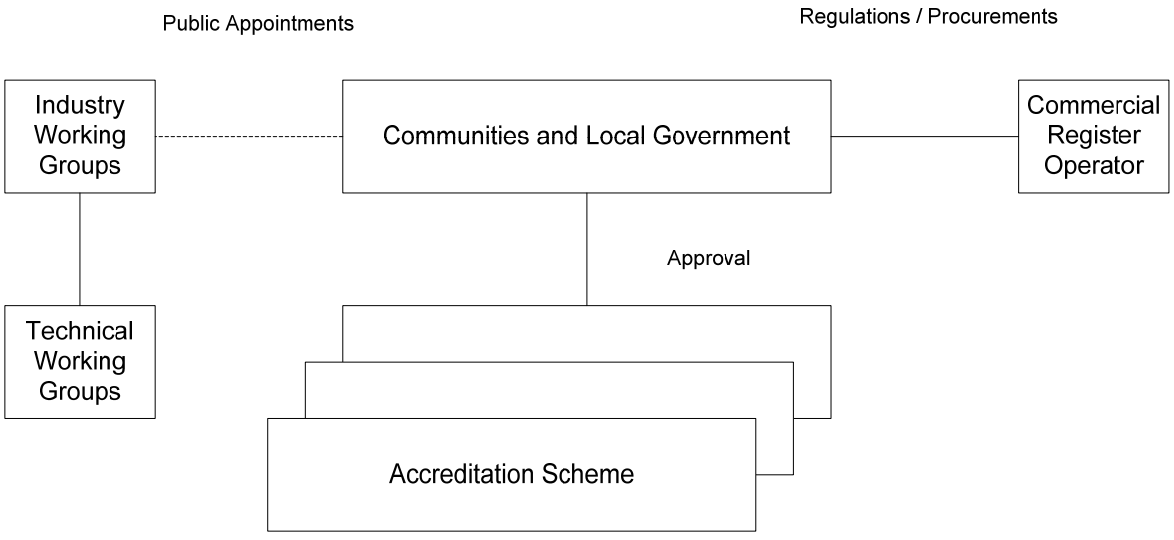
The Department has recently started the procurement process to appoint a contractor to provide an IT system. Primarily this involves:

1 Maintaining one or more electronic registers ('archives') of Energy Documents which comprise: (i) CEPCs and Recommendation Reports for non-dwellings, (ii) DECs for larger public buildings, and (iii) advisory reports for larger public buildings. The register(s) will also include the Model Data input to the calculation tools that prepare these Energy Documents and the output that the model produces.

2 Providing services to enable the identification of EAs and acquisition and downloading of the Energy Documents and Model Data to and from the Register(s).

## 3 ORGANISATIONAL VIEW

Numerous organisations will be involved, either directly or indirectly, in providing the key functionality described required for the Commercial Energy Performance Scheme. Below is a pictorial representation of the organisation level view:




The following five bodies who are involved are:

**Communities and Local Government**

The Secretary of State will approve Accreditation Scheme(s) against the Criteria and Standards documentation. These standards govern EAs, Accreditation Schemes and Energy Documentation.

CLG will review and approve any operational changes to the system. CLG are also responsible for setting the lodgement fee to be charged.

**Accreditation Schemes**

Accreditation Schemes will be required to comply with all the conditions attached to their Approval, including the Criteria and the Standards.

Accreditation Schemes will be required to carry out certain primary functions in accordance with the Standards which define minimum acceptable levels of operation, performance data and associated quality management that is required by CLG together with those areas of required co-operation with other Accreditation Schemes.

**CECR Operator**

The CECR Operator will be procured by CLG. The Register will deal with non-domestic and public buildings initially. It will be responsible for providing and maintaining a central 'archive' for all EA generated Energy Documents and Model Data. The CECR will also hold EA accreditation data for search purposes and financial information in respect of lodgement fees and possibly subscription fees.

**Industry Working Group**

The role of this body would solely be to provide independent expert advice to CLG and it has no executive powers. Its purpose would be to advise CLG on the ongoing suitability of the Standards, recommending changes where necessary, and also advising on issues relating to performance of Accreditation Schemes and technical issues.

**Technical Working Group**

The Technical Working group would feed into the Industry Working Body to provide independent expert advice on technical standards, software and methodologies.

# 4 SUMMARY OF THE REQUIREMENT

This section summarises the expected benefits expected and defines the procurement scope including the core elements (What must be provided), optional extensions or opportunities (What we would consider in addition to the above) and any exclusions (What we will not consider).

## *4.1 Goals*

The goal is to support the implementation of the Energy Performance of Buildings Regulations 2007 by an automated register to provide a way of effectively managing the Energy Documents and associated energy Model Data and provides a basis for the analysis of this data for purposes including establishing benchmarks, aiding and monitoring implementation of the Regulations and informing Government policy.

### 4.2 Objectives:

There are two key objectives:

1. Ensure that an effective CECR operation is a fully functional component of the implementation of the mandatory Commercial Energy Performance Certificate scheme by the 6th April 2008
2. Ensure that an effective CECR operation is a fully functional component of the implementation of the mandatory Display Energy Certificate scheme by the 7th March 2008

### 4.3 Success factors

1. Implementation of system according to delivery schedule specified
2. Reliability, continuity of service offered to the Accreditation Schemes and other parties
3. The successful integration of CLG approved energy software with the CECR
4. Consumers are able to trust the CECR i.e. have integrity and authenticity of the data and services it provides.
5. The CECR can be used to uphold the Energy Performance of Buildings Regulations.
6. The CECR can be amended or extended in the future

### 4.4 Benefits

Establishing a CECR will achieve the following:

1. Ease of management and associated low cost – Electronically lodged documents are simpler to administer, audit, and are lower cost than paper based alternatives. Any paper based alternative will be more expensive, complex to administer and more open to fraud.
2. Verification – Each document is to be lodged in a secure register either by the Accreditation Scheme to which the EA who produced it belongs to or directly by the EA. It also provides a simple method of verification at a later stage if any concerns about it authenticity of an Energy Document was raised.
3. Energy Assessors – Aid the assessors in carrying out their duties by providing details from previous assessments to use in current assessment
4. Accreditation Schemes – Aid the schemes in carrying out their duties. This may include quality control of their members
5. Enforcement bodies – Aid the bodies in carrying out their duties. This includes reviewing whether Energy Documents have been produced and lodged for buildings on construction, sale and rent.
6. Benchmarking – the energy ratings on the CEPCs and DECs can be used to provide better benchmarks in future CEPCs and DECs. Given the volumes, only a system supporting electronic storage would allow subsequent data analysis by CLG (or contracted a third-party) to determine benchmarks.

7. Government implementation of regulations and informing policy – CLG analysis of energy information within the electronically stored documents can enable it to monitor the application and enforcement of, and compliance with, the duties imposed by the Energy Performance of Buildings Regulations. CLG can also use this information for research and statistical purposes, for example to develop Government policy on energy issues.

## *4.5 Scope*

### *4.5.1 In Scope*

*In scope* for the CECR are the following:

- Lodgement of Energy Documents and Model Data by Accreditation Scheme
- Retrieval of current and historical Energy Documents by unregistered users
- Retrieval of Energy Documents and Model Data by registered users
- The invoicing of financial charges i.e. subscription (for data extracts, reporting and lodgement fees (for energy assessments)
- Lookup of active EAs
- Infrastructure e.g. secure communications network providing access to database and system facilities
- Provision of a security model to protect the integrity of data and access to valid users
- Disaster recovery and business continuity
- All aspects of delivery and services which include development, testing, implementation & maintenance
- Multi language capability to support Welsh & English
- Data Requirements required to support functionality:
    - EA Registration data
    - Energy Documents – in PDF format
    - Energy Assessment data (non domestic and public buildings), including model input and output data.
    - Financial Information in respect of lodgement fees & subscription fees (possible future requirement)
    - Accreditation Scheme data used to verify any Energy Documents lodgement made by an Accreditation Scheme
- Interfaces to third parties, i.e. CLG approved commercial energy software
- Commercial energy software testing facility - to allow providers of commercial energy software to test and apply for software approval.
- Transitional CECR to store DECs, ARs and Model Data before delivery of the final CECR. The transitional CECR data will be migrated to the final CECR by the CECR Operator.

### 4.5.2 Assumptions

- No charge will need to be collected for use of EA lookups or retrieval of current or historical Energy Documents or energy assessment data.
- Any functionality that is only to be provided to the EA for them to interact with the Accreditation Scheme and support their processes is out of scope.
- No changes can be made to a report once lodged. However the status of a certificate/report may change throughout its lifetime.
- The HCR Register operated by Landmark and the CECR will have separate UPRN, property and address databases

## PART B – REQUIREMENTS

This section contains functional and non-functional requirements (not specifications) of the main business services and responsibilities that the CECR Operator is expected to provide on behalf of the CLG to the marketplace.

## 5 CORE REQUIREMENTS

The following is a list of mandatory functional requirements. It is expected that any tender should reflect understanding and demonstrate wherever appropriate how any proposed solutions will fulfil these requirements:

| Ref | Requirement Type | Requirement Outline | Non-Functional Requirements |
|---|---|---|---|
| R01 | Functional | **Request Unique Property Reference Number**<br>The EA must request a UPRN directly from the CECR through the Accreditation Scheme or directly from the CECR before any Energy Documents and Model Data can be lodged. The UPRN can be obtained on a complete or partial address to identify the Property that the Energy Documents relate to.<br>The facilities available for searching are dependent on the underlying data-set that is licensed. From a successful search the UPRN that uniquely identifies the Property of interest is returned or a request to add a "Missing" Address is raised.<br>The UPRN is a unique identifier that identifies every usable property in England and Wales including sub-buildings and sublets within a building. The UPRN generated by the CECR should be unique and distinct from that used by the HCR Register operated by Landmark to avoid the risk of any duplication of UPRNs across the CECR and the HCR Register. The UPRN generated by the CECR is not in anyway related to that used by the Royal Mail or Ordnance Survey.<br>A building subdivided in several parts will have separate UPRNs. This division will depend on several criteria, which as still being finalised, but are likely to include criteria such as the functional use of the space (e.g. if a building has both office and retail space, separate | Availability: Very High (99.99%)<br>Response: < 30 seconds (24 hours for new UPRNs)<br>See also transactional volumes & data consistency no-functional requirements<br>Security: CLG approved commercial energy software or EA |

| | | | |
|---|---|---|---|
| | | CEPCs will be required for each space) and whether the energy supplied to the space is under the direct control of the occupier (e.g. if retail shops each had individually heating, ventilation and air-conditioning (HVAC) systems they would each require a separate EPC whereas if there was a common HVAC system they would require a single EPC). The energy assessor and accreditation scheme will know whether a separate part requires its own UPRN and energy certificate.<br><br>A property in Wales has both an English and Welsh Address and when producing a certificate or report in those languages the EA should consistently use the correct address in the relevant language.<br><br>The CECR will be responsible for receiving, authenticating, searching, creating a new UPRN (if necessary) and returning the UPRN to the EA or Accreditation Scheme. | |
| R02 | Functional | **Submit and lodge Energy Documents and Model Data**<br><br>The EA will be able to lodge Energy Documents and the Model Data via the Accreditation Schemes or directly into the CECR.<br><br>Only EAs who are registered with an Accreditation Scheme will be able to submit and lodge Energy Documents via an Accreditation Scheme or directly into the CECR. The CECR must authenticate that the EA is indeed an active Member at the time of submission. There should also be data integrity checks made before any lodgement is made.<br><br>Once a lodgement takes place it cannot be modified in anyway except for a change of status (See later). Any lodgement process must not obstruct or delay the work of the EA.<br><br>The Energy Documents will be received in PDF format. It can be assumed that these PDFs are correct therefore no validation need take place. The onus will be on the Accreditation Scheme to correctly lodge the Energy Documents against the correct UPRN that was requested.<br><br>The Model Data will be received in XML and will also be stored in the CECR.<br><br>CEPC and RR reports are normally submitted together. However the DEC may be submitted separately from the Advisory Report. The CECR will allow flexibility in what order and combinations of documents and Model Data can be sent.<br><br>The CECR will also be able to collect record & process a lodgement fee, payable by the | Availability: Very High (99.99%)<br><br>Response: < 1 minute during operational window or before the start of business the next day if invoked outside the operational window e.g. overnight batch process. This is to allow for overnight maintenance outages for housekeeping tasks.<br><br>Security: CLG approved commercial energy software or EA<br><br>See also transactional volumes & data consistency no-functional requirements<br><br>An internal technical problem such as transaction failure must |

| | | | |
|---|---|---|---|
| | | Accreditation Scheme.<br><br>The CECR will therefore be responsible receiving, authenticating, initial validation, collection of the lodgement fee and the lodgement of the Energy Documents and Model Data and finally the response back to the Accreditation Scheme. | not be a reason to fail a lodgement of data. |
| R03 | Functional | **Change in status of Energy Documents and Model Data**<br><br>The Accreditation Scheme will be able to change the status of any of the earlier lodgements of Energy Documents made by an EA. An EA cannot request a change of status direct to the CECR.<br><br>The status of an Energy Document and Model Data may change during its lifecycle to indicate the usability and reliability of the Energy Documents in certain scenarios. In all of these cases it is necessary to update the status of an Energy Document recorded in the CECR. Any document must never be removed from the CECR once it is lodged.<br><br>Once lodged, the status of the Energy Documents and Model Data can only be altered with the approval from the Accreditation Scheme. Consequently all requests, whether made directly to the Accreditation Scheme or via its Complaints & Disciplinary Body, will be sent to the CECR Operator by the Accreditation Scheme that accredited the EA who undertook the original energy assessment and lodged the document.<br><br>The CECR will therefore be responsible receiving the change request, authenticating, initial validation, changing the status and sending the response back to the Accreditation Scheme. | Availability: Very High (99.99%)<br><br>Response: < 1 minute<br><br>Transaction Volumes: 0.1% of Total Energy Assessments will need to go through a change of status.<br><br>Security: CLG approved commercial energy software.<br><br>See also transactional volumes & data consistency no-functional requirements |
| R04 | Functional | **Retrieve and view Energy Documents & Model Data**<br><br>Unregistered users with the RRN can request the Energy Documents directly from the CECR. They are also entitled to any document of the same kind relating to the same UPRN as the requested document, which was registered at any time during the period of 10 years ending on the date of the request.<br><br>EAs or Accreditation Schemes should be able to access information (by RRN or UPRN) from the previous years Energy Documents for use in current energy assessments for example automatic pre-fill basic building data in an assessment which can then be changed if necessary or use previous years' energy readings. There is no time limit i.e. if the document is on the register it should be accessible. | Response: < 30 seconds<br><br>Availability: 99.99% , Very High<br><br>Security: Unregistered and registered users to functionality as described.<br><br>See also transactional volumes & data consistency no-functional requirements |

| | | | |
|---|---|---|---|
| | | Registered users such as Enforcement bodies should also be able to search by address (street name, postcode etc) and EA as well as the RRN. There is no time limit i.e. if the document is on the register it should be accessible.<br><br>It is expected that a majority of the requests will come directly from unregistered users i.e. potential purchasers or tenants and therefore an online web portal must be made available to service these transaction requests.<br><br>Any retrieval request must be subject to acceptance of the terms and conditions before the request can be satisfied.<br><br>The CECR will authenticate and service any request to retrieve and display the appropriate CEPC & RR. | |
| R05 | Functional | **Lookup of Energy Assessor**<br><br>Anybody who needs to find and/or authenticate an EA must be able to lookup an EA in the CECR. It should show details including their locality, and what Energy Documents they are accredited / competent to produce on which classifications of buildings.<br><br>It is expected that a majority of the requests will come directly from potential landlords or owners and therefore an online web portal must be made available to service these transaction requests as well as those originating from the Accreditation Scheme.<br><br>The data in the lookup facility will also be used to validate a lodgment request i.e. any lodgment request must have been submitted by an active accredited EA<br><br>The CECR will be responsible for keeping an up to date index of EAs which will be supplied by each of the Accreditation Schemes and providing this lookup facility which will return the Assessor details and additional information including status. | Response: < 15 seconds (incl. Internet requests) assuming 1 Mb Internet connection<br><br>Availability: Very High (99.99%)<br><br>Security: No restrictions |
| R06 | Functional | **Update Energy Assessor Index**<br><br>The Accreditation Schemes will be responsible for supplying the central CECR with an updated list of EAs within their Scheme on a frequent basis.<br><br>The content of the EA Index needs to be accurate and complete and reflect the state of all | Response: < 1 minute<br><br>Availability: Very High (99.99%)<br><br>Updates to index time to time…small percentage subject to change 1- 3% of reports |

| | | | |
|---|---|---|---|
| | | EAs provided by the Accreditation Schemes as at the close of business the previous day. The assumption is that a newly accredited EA would not be performing inspections on the day that they become accredited because the details of their accreditation would be in the post (or whatever delivery mechanism is used to courier it to them).<br><br>All changes to EAs will be effective by the next day.<br><br>The CECR will be responsible for keeping an up to date index of EAs which will be supplied by each of the Accreditation Schemes and providing this lookup facility. | lodged.<br><br>Security: Accreditation Schemes only |
| R07 | Transitional CECR | **Accept DECs, ARs and Model data before delivery of the CECR**<br>Some Accreditation Schemes and EAs will wish to submit DECs, ARs and Model Data before the delivery of the final CECR. A transitional CECR of accepting DECs, ARs and the Model Data must be in place by 1st Feb 2008.<br>The data collated must be received from an Accreditation Scheme or EA and stored in a suitable repository so that it can be migrated to the final CECR. Once the data migration has been successful the transitional CECR can be disabled. | 10,000 – 20,000 DECs and ARs to be collected in the period 1st Feb 2008 to 7th March 2008 |
| R08 | Reporting / Data Extract | **Produce regular data extracts and reporting to CLG**<br>CLG will require regular and periodic updates to a CLG data repository so that management reporting and data analysis can be carried out.<br>The data extract should extract all CECR data contents and there may be some selection, summarisation, sorting, and grouping of the data that needs to be applied. Any data must also be depersonalised.<br>Regular reports will be required to monitor and aid the implementation of the Energy Performance of Buildings Regulations and help reporting to the EC. | Any data extract or report should be implemented as a backend batch process outside the CECR operational window to allow off peak processing. Therefore the data extract or report should successfully complete its processing before the start of the operational window. |

## 6 NON-FUNCTIONAL REQUIREMENTS

This section covers the mandatory non-functional requirements for the CECR. It is expected that any tender should reflect understanding and demonstrate wherever appropriate how any proposed solutions will fulfil these requirements.

| Ref | Requirement type | Requirements Outline |
|---|---|---|
| N01 | Integrity | The consumer must be able to trust the Register and have confidence in its integrity & authenticity.<br>The Register will be the Database of Record for all Energy Assessments and in the event of dispute provides the definitive statement regarding the actual Energy Document that was produced and lodged along with the Model Data that was used to produce that Energy Document.<br>Therefore the Operator must ensure that the Register:<br>• maintains its internal integrity<br>• be safeguarded from any unauthorised tampering.<br>• protected from both internal and external threats.<br>• reduce any risks of fraud and abuse that may take place across the end to end process. |
| N02 | Data Consistency | Due to the highly distributed nature of the marketplace there is a significant issue with enforcing consistency across the entire marketplace. A particular area where consistency is essential is in the identification and addressing of each Property being reported on. A shared central database of Property & Address details is the most obvious way of achieving consistency both cost effectively and in the required timescales.<br>Some scenarios where consistency is required are:<br>• *A Property may have a number of different addresses associated with it in addition to the primary or "official" address for example the street may have more than one name or the owner decided to give the house a name or a building has been sublet by units or floors. In order to maintain consistency it is essential that all Energy Documents relating to a property* |

*consistently have the same correct address shown*

- *Over time the identifying characteristics of a Property can change e.g. a Royal Mail Postcode reorganization may result in a postcode change for the Property therefore the address of the Property is not sufficient*
- *A Property in Wales has both an English and a Welsh Address and when producing Energy Documents in one of those languages the EA should consistently use the correct address in the relevant language.*

It is the up to CECR Operator to select appropriate data-sets or service providers – such as Ordnance Survey Addresspoint, Royal Mail Postal Address File (PAF), National Land & Property Gazetteer (NLPG) or National Land Information Service (NLIS) – that could be used either to directly satisfy these requirements or form a significant foundation to meeting the requirements.

The primary data requirements are:

- Provision of a Unique Property Reference Number (UPRN) that uniquely identifies every useable non-dwelling property in England & Wales. This includes units, floors within buildings etc.
- The minimum data requirements for each Property are as per the common 5 line address format which includes Unique Property Reference Number, Primary Address, Secondary and Alternative Addresses e.g. English / Welsh equivalents of same property, local aliases etc.

The primary functional requirements are:

- Address Searching - to be able to find a Property and its Unique Property Reference Number based on an address or partial address or postcode. Fuzzy and Soundex searching should be used where appropriate.
- Get Primary Address for the Property referenced by the Unique Property Reference Number.

Other key requirements:

- The "master" copy of the data is to be maintained by the CECR Operator to enforce consistency in the CECR and can ensure uniqueness of Unique Property Reference Number over the life of the Energy Documents. This may require daily maintenance updates.

| | | |
|---|---|---|
| N03 | Usability | The process of using the CECR should not unnecessarily delay or obstruct the process of energy assessing a building. The CECR and its processes should be available in a way that any organisation or individual that relies upon it for their own processes to take place is able to conduct their business without delay or obstruction. |
| N04 | Transactional Volumes | These Transaction Volumes are indicative of expected activity and are provided to assist prospective Operators in their calculations. The key transaction volumes are:<br>• 216,000 CEPCs and associated reports per annum (2.08 million over 13 years). Growth rates dependant on external market activity.<br>• 42,000 Display Energy Certificates annually with associated Advisory Reports which are updated every seven years<br>• Active EAs able to produce DECs : 1,500<br>• Active EAs able to produce CEPCs: 2,500<br>• Size of each PDF certificate / report: DEC or CEPC (up to 300k). AR or RR: 2-5 pages of text with no high-quality figures<br>• Size of XML data:<br>  • DEC & AR (up to 0.5Mb) and CEPC & RR (up to 2Mb): the files include: XML of input data to software, XML of output data and appropriate headers.<br>• Lifetime access to Energy Documents: Approximately 7 to 10 accesses will be performed per CEPC, RR during the course of its lifetime.<br>• Number of Commercial & Public Properties in England & Wales: 1,526,877 |
| N05 | Backup, Recovery | Operating as a “no-loss” data environment it is essential to ensure that all the Certificate & Reports in the CECR are regularly backed-up to secondary storage to protect the data from loss or corruption.<br>There are no special considerations for backup & recoverability of the CECR database over and above the normally expected requirements for protecting the data. It is expected that the CECR Operator will define reasonable procedures for agreement by CLG.<br>It is essential that the backup process does not unnecessarily impact CECR service connectivity, availability or responsiveness.<br>Recoverability of the application in the event of a system failure should be minimised as much as is feasible within the economic |

| | | |
|---|---|---|
| | | constraints.<br>Standard Operating Procedures (SOPs) should be in place clearly stating the step-by-step procedures to follow should the recovery operation be invoked.<br>Risk assessments should take place periodically especially when there has been changes affected to the register or the system environment.<br>Operational training is an often-ignored aspect that should receive a high priority. The recovery operation should not be jeopardised due to a lack of properly trained alternative staff members being available when a recovery is required.<br>This backup procedure should be synchronised with other affected parties.<br>Recovering data from the backup copies should be regularly tested to ensure integrity of the recovered data.<br>The Accreditation Scheme is able to monitor and audit work of their members but may be a source of data too in case of the partial or full failure of the Register. However this should not be relied upon as a critical part of the recovery process. |
| N06 | Disaster Recovery & Business Continuity | In the event of a wholesale system outage a mirror/standby site should be available and should capable of being operational within one working day from the point the primary system outage has occurred.<br>The Operator must be able to provide the same functionality at a different site with alternative communications, with as close a replication of the system data as possible to the point in time of failure. The scope of any Recovery should include personnel and location as well as functionality.<br>It is the responsibility of the CECR Operator to develop and agree acceptable and cost effective procedures for disaster recovery that minimises the impact of any major system outage on the market. |
| N07 | Archiving | Maintain archive of Energy Documents and Model Data used to collect it for at least 20 years. |
| N08 | Security | This is closely related to the Integrity & network requirements in this document.<br>To ensure unauthorised tampering of stored data the supplier must consider at least the following set of security access controls:<br>• Limit access to valid users and protect integrity of data.<br>• Data must have appropriate protection and access control so to avoid unlawful disclosure of info from any artefact.<br>• Any data maintenance activity must take place in a secure environment |

| | | |
|---|---|---|
| | | • All user transactional service and user requests to the register can only be carried out by registered users and any operations are authenticated when the service is invoked.<br>• Ensure any message that purports to be from a particular registered user or source is in fact from that registered user or source.<br>• A User (either Registered or Unregistered) may only invoke services according to their role. They must be restricted from invoking unauthorised services.<br><br>*A*fter a CLG assessment of the level of data protection required the CECR Operator must adhere to the security guidelines laid down by CLG IT Security.<br>There are also are also recommendations from the e-Government Unit surroundings web-site accessibility that should be applied.<br>In considering authentication methods there must be an allowance for mass deployment of client applications such as SBEM, DSM energy software models approved by CLG for EAs. As an example the CECR Operator may want to consider a certificate or token based approach rather than just username / password.<br>Procedures for registering and managing Authorised Users will need to be defined by the CECR and made available as a set of standard interfaces to industry stakeholders. |
| N09 | Availability | There must be controlled access to system 24/7 and is met at least 80 percent of the time unless indicated specifically in each transaction.<br>The overall availability requirements for the CECR and related services are dependent on the operational requirements of the significant user groups. The following are the expected availability profiles for each of our significant groups of Registered Users:<br>**EAs** will produce Energy Documents during the normal professional working day over a 6-day working week with possibly occasional access – e.g. to meet a heavy work load - later in the evening.<br>**Accreditation Schemes** would only require access to modify details of EAs as part of their standard business operations. It is expected that the Energy Document lodgements will be submitted as a mixture of overnight bulk submission files and single ad-hoc registrations taking place during the day.<br><br>Hence estimated minimum availability required for both sets of users is 06:00 → 24:00; Monday → Saturday. However the |

| | | |
|---|---|---|
| | | suggested method of updating the CECR by Accreditation Schemes would require overnight access to bulk process the changes made during the day.<br>The supplier must also demonstrate how they intend to minimise the impact of a failure in the Register across all the transactional services. |
| N10 | Scalability | The CECR must be scaleable to accommodate any fluctuations in the transactional and volumes stated and increase in demand. |
| N11 | Extensibility | There is a requirement to be able to extend the CECR Business Information Model.<br>For example the solution may be improved during contract lifetime to<br>• Expand register to include other elements of Energy Performance of Building Regulations e.g. air-conditioning or boiler inspection reports.<br>• Extend to incorporate additional data that can be lodged<br>The data model will be extended to integrate new information and it should be assumed that all Business Entities may be extended at any time and that the optional extensions may or may not be pre-notified to support staff.<br>Hence a significant design criterion is that the data model must be easily extensible without incurring significant impact or unnecessary changes to any existing software. |
| N12 | Data Protection | The CECR holds commercial data. The data that is considered of a personal nature is that of the EA and building owner which includes name & contact details. It is expected that the CECR Operator will investigate and adhere to any data protection legislation as required. |
| N13 | IT Governance | It will be the CECR Operators' responsibility to govern the published CECR Technical Standards on behalf of CLG and assure industry adherence to them. The EA accreditation requirements are the responsibility of the Accreditation Scheme to enforce.<br>As part of the IT Governance responsibility the CECR Operator will:<br>• Publish, circulate and manage the implementation of the Technical Standards on behalf of CLG. |

| | | |
|---|---|---|
| | | • Provide advice on the correct implementation or interpretation of the published Technical Standards.<br>• Monitor activity against the CECR to ensure adherence to the published standards and consistency of use across the industry. This is separate to any EA Quality Assurance activity carried out on behalf of an Accreditation Scheme.<br>All changes to the standards will be drafted by the CECR Operator. CLG remains the owner and final Design Authority on changes to all standards, specifications and service requirements and will have ultimate responsibility for sign-off and publication. |
| N14 | Change Management | A change management mechanism must be established to allow for future amendments to the transfer interface standard between the CLG approved energy software and the CECR.<br><br>There may be points in the future where the CECR Technical Standards have to be changed. E.g. there may be changes from further energy performance legislation in the future although it is not expected that this will impact the structural definition of the Energy Documents. But any future changes need to be managed.<br>It is expected that the CECR Operator should act as the CLG agent to manage any changes to the CECR Standards including the Data Model, all XML Message Specifications, the Mandatory & Preferred Text and all documentation relating to definition of the Energy Documents.<br>The decision-making point of whether a requested change will be implemented or not remains with CLG as the owner of the standards, but it is expected that all other aspects of the Change Management process will be carried out by the CECR Operator which will include:<br>• Liaison with key industry stakeholders, such as Accreditation Schemes, for impact analysis of proposed changes.<br>• Coordinating implementation of agreed changes.<br>• Setting timescales for changes and the implementation of those changes<br><br>It is expected that the CECR Operator will define and publish a Change Management process as part of their submission. The Operator may wish to take into account the following:<br>• Process should not be resource heavy - Due to the extremely low volatility of the Energy Documents & Model Data it is expected that this proposed process should not be resource heavy to the extent that it cannot operate reasonably<br>• Must be robust enough to minimise the risk relating to the implementation of a change. |

| | | |
|---|---|---|
| N15 | Test Environment | A separate software testing facility to allow providers of commercial energy software to test and apply for CLG approval must be made available and maintained. There should not be any dependency on the CECR Live, UAT, System or Development environments.<br>The CECR Operator is also expected to develop the test messages. These will be approved by CLG. |
| N16 | Network | Communications network providing access to database and system facilities which is secure. It must meet government standards and guidelines for security A private network linking key industry users to the system must also be in place. After a CLG assessment of the level of data protection required the CECR Operator must adhere to the security guidelines laid down by CLG IT Security. |
| N17 | Multi-Language | The CECR front end functionality must be available in English and Welsh |
| N18 | Technologies | The public front end will be web-based - although other software providers could have downloadable software etc |

## 7 CONSTRAINTS

This section covers the constraints that should be taken into account when considering any proposed solutions:

| Ref | Requirement type | Requirements Outline |
|---|---|---|
| C01 | Delivery | Commercial Energy Performance Certificate component of the Register to be fully operational by 6th April 08<br><br>The display component of the register must be fully operational by the 7th March 2008. Limited development time to meet regulatory requirements.<br><br>In order to meet delivery deadlines it will be necessary to have a system in place winter 07 so as to ensure that effective CECR operation is a fully functioning component of the implementation of the mandatory display energy certificate scheme from the 7th March 2008.<br><br>The transitional system to accept DECs, ARs and the Model Data must be in place by 1st Feb 2008. |
| C02 | Messaging & Interface standards | As the environment surrounding the CECR is distributed with many different commercial organisations providing services that may be invoked, it should be assumed that the environment is a low-trust environment and the onus is on the recipient of any message or data to ensure that what they receive is both valid and correct. This specifically applies to the messages between the CLG approved energy software and the CECR.<br><br>Data validation should consist of:<br>• Ensuring that the message conforms to the structural definition constraints declared in the appropriate XML Schema Definition file. That is:<br>  • All mandatory fields are populated<br>  • Cardinality constraints are enforced<br>  • Only known data-item "tag names" are present – proprietary extensions to the messages are not allowed.<br>• Checking that all "enumerated" fields only contain values from the appropriate domain.<br>• Ensuring that any data-items containing references (or foreign keys) are valid e.g. the CEPC contains a reference to the EA that prepared the report so need to check that the EA is a currently practicing and valid EA by checking against the |

| | | |
|---|---|---|
| | | EA Index.<br><br>A list of messages (including model inputs and outputs), appropriate structures, and error exception handling to support the development of the Accreditation Scheme Software whilst a CECR Operator is being chosen will be created by CLG and will be available to the selected CECR Operator to enable them to successfully integrate the Scheme software into the CECR.<br><br>The CECR Operator will be responsible for managing the Accreditation Schemes and /or software providers interfacing of the energy models with the register. However to enable the software suppliers to develop their software in parallel whilst the CECR Operator is being sought the initial technical standards will be produced by CLG. |

## 8 POSSIBLE ADDITIONS AND VARIATIONS TO CORE REQUIREMENTS

This section covers the possible future requirements for the CECR. It is expected that any tender should reflect understanding and demonstrate wherever appropriate how any proposed solutions may fulfil these requirements in the future:

| Ref | Requirement type | Requirements Outline |
|---|---|---|
| P01 | Data Extract (Subscription basis) | The Energy Industry may be approved to use the CECR data in the future for marketing purposes e.g. target landlords for energy improvement products. This is not currently allowed for in the Regulations.<br>This data must be aggregated over a number of buildings to protect privacy and could be provided on a subscription basis.<br>An aggregate data extract facility should therefore be available to supply this data to them. This data may be sold on a cost or licence basis therefore any subscription costs should also be collected and recorded for internal reporting purposes. |
| P02 | Bulk Data Extraction | With all long-term data storage capabilities there are many scenarios where the data may need to be bulk extracted from the repository for transferring to another repository. For example:<br>• *The technical platform becomes obsolete – for example due to changing business requirements – and a non-transparent upgrade path requires the existing CECR data to be extracted and transferred into the new CECR.*<br>• *Continual non-conformance to the Service Level Agreement results in the contract being terminated and awarded to another supplier. The new CECR Operator may choose a different Operational Platform that requires the CECR data to be extracted and transferred during hand-over period.*<br>• *Other government departments or agencies may be granted access to the data for specific purposes and need to perform bulk extracts of data from the CECR for populating another repository.*<br>As part of any solution the CECR Operator will need to demonstrate:<br>• The data can be extracted from the CECR in a platform neutral format – ideally by reconstructing the original messages – in order to migrate the data to another Commercial Report Register possibly on a different operational platform.<br>• Any proprietary or licensable software required for this extraction is identified with the expected cost of any licensing payment. Wherever possible at least one viable alternative should also be identified. |

| | | |
|---|---|---|
| | | • The solution allows for selective extraction of data – e.g. All Energy Performance Reports registered between two dates – so that staged transference can occur during any handover period.<br><br>The data to be included in the handover includes the contents of the:<br>• Energy Documents and Model Data<br>• Property & Address details dataset<br>• User Registration and Authentication dataset<br>• Accreditation Scheme dataset |
| P03 | Central Information Point | CLG may require the CECR Operator to design, host, run and on a monthly basis update a DEC and AR Central Information Point (CIP).<br><br>The CIP will hold information used by the Operational Rating calculation software and the AR generation software. The CIP will allow real time, automatic access to the information held by multiple software [as well as providing a web-based interface for conventional website type access]<br><br>The information to be held on the CIP will include:<br>• The CIBSE benchmarks tables. The benchmarks tables hold basic benchmark data.<br>• The degree days data. Note that this will be an expanding database of information as data will be added regularly (monthly). A minimum of 3 years data must be held and be accessible at all time. A minimum of 10 years data must be held for quality assurance purposes<br>• The CO2 emission factors<br>• The approved area conversion factors<br>• The database of energy improvement measures to be used for the generation of Advisory Reports |

| | | |
|---|---|---|
| | | • Any other information as specified by CLG<br><br>The CECR Operator will be require:<br>• To obtain standard degree day data. This may require entering into contract with a service provider.<br><br>If required this requirement will need to be delivered for the 18t$^{h}$ December 2007 |