

REQUIREMENT SPECIFICATION (RS)
ON
DATA MANAGEMENT SYSTEM
FOR
BUILDINGS ENERGY EFFICIENCY ORDINANCE
FOR
ENERGY EFFICIENCY OFFICE
OF
ELECTRICAL AND MECHANICAL SERVICES
DEPARTMENT (EMSD)



By



Version: 0.1

November 2021

© The Government of the Hong Kong Special Administrative Region

The contents of this document remain the property of and may not be reproduced in whole or in part without the express permission of the Government of the HKSAR.

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

Distribution	
Copy No.	Holder
1	Electrical and Mechanical Services Department (EMSD)
2	Automated Systems (HK) Limited (ASL)

Prepared By: _____
Christine LAM
Automated Systems (HK) Ltd.
[Project Manager]

Endorsed By: _____
Kenneth Fung
Electrical and Mechanical Services Department
[EE/ITD/3]

Date: _____

Date: _____

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

Amendment History				
Change Number	Revision Description	Section Affected	Revision Number	Date
1	Draft Version	All	0.1	09/11/2021

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

Table of Contents

1.	DEFINITION OF TERMS	4
2.	USER REQUIREMENTS	5
2.1	PROPOSED SYSTEM OVERVIEW	5
2.2	REQUIREMENT CATALOGUE.....	5
2.2.1	<i>General Characteristics</i>	5
2.2.2	<i>Functional Requirements</i>	8
2.2.2.1	General Functional Requirements	8
2.2.2.2	List of Functional Requirements	8
2.2.2.2.1	REQ-1001 – Retrieve Eligible Roles of Login User.....	9
2.2.2.2.2	REQ-1002 – Facilitate the Form Filling Process	10
2.2.2.2.3	REQ-1003 – Validate the Application Data Transmitting from WBRS	11
2.2.2.2.4	REQ-1004 – Online Submitting the Received Application to DMS	12
2.2.2.2.5	REQ-1005 – Facilitate Payment Process of Application	13
2.2.2.2.6	REQ-2001 – REA Case Maintenance	14
2.2.2.2.7	REQ-2002 – REA Certificate Generation.....	16
2.2.2.2.8	REQ-2003 – REA e-licence Generation	17
2.2.2.2.9	REQ-2004 – Download REA Submission	18
2.2.2.2.10	REQ-3001 – COCR Case Maintenance	19
2.2.2.2.11	REQ-3002 – COCR Certificate Generation	21
2.2.2.2.12	REQ-3003 – COCR e-licence Generation	22
2.2.2.2.13	REQ-3004 – Download COCR Submission	22
2.2.2.2.14	REQ-4001 – FOC Case Maintenance	24
2.2.2.2.15	REQ-4002 – Download FOC Submission	26
2.2.2.2.16	REQ-5001 – “Create Work” Page Handling.....	27
2.2.2.2.17	REQ-5002 – Show the Ratio and Number of Hardcopy Cases versus e-Submission Cases in “Statistics” Page	28
2.2.2.2.18	REQ-5003 – “Work (Details)” Page Fine Tune.....	29
2.2.2.2.19	REQ-5004 – Add Payment Status.....	30
2.2.2.2.20	REQ-5005 – Add a “Grounded Date for Extension” in Application	31
2.2.3	<i>Non-Functional Requirements</i>	32
2.3	AUDIT, CONTROL AND SECURITY RELATED REQUIREMENTS.....	33
2.3.1	<i>System Audit Requirement</i>	33
2.3.1.1	ACS-0001 System Log Audit.....	33
2.3.2	<i>System Access Control Requirements</i>	34
2.3.2.1	ACS-0002 Physical Access and Security	34
2.3.2.2	ACS-0003 System Access.....	35
2.3.2.3	ACS-0004 System Performance and Usage Reporting	35
2.3.3	<i>System Backup and Recovery Requirements</i>	35
2.3.3.1	ACS-0005 System Backup Requirement	36
2.3.3.2	ACS-0006 System Recovery Requirement	36
2.3.4	<i>Disaster Recovery Requirements</i>	37
2.3.4.1	ACS-0007 Off-site Backup Arrangement	37
2.3.4.2	ACS-0008 Disaster Recovery	37
2.3.5	<i>Reporting</i>	38
2.3.5.1	ACS-0009 Management Reports.....	38
2.3.5.2	ACS-0010 Operational Reports.....	39
2.3.5.3	ACS-0011 Ad Hoc Reports.....	40
2.4	CONSTRAINTS LIST.....	41
2.4.1	<i>Use of Equipment</i>	41
2.4.2	<i>Interface with Other Systems</i>	41
2.4.3	<i>Manual and Clerical Procedures</i>	41
2.4.4	<i>Input and Output</i>	41
2.4.5	<i>Operational Constraints</i>	41
2.4.6	<i>Business Organization and Policy</i>	41

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

1. DEFINITION OF TERMS

Term	Definition
WBRS	Web-based Registration Services for online application submission.
ETO	Electronic Transmission Ordinance which is governing the requirement on electronic transmission.

2. USER REQUIREMENTS

2.1 Proposed System Overview

The Buildings Energy Efficiency Ordinance (Cap. 610) (BEEO) had been enacted in November 2010. To facilitate the application submission from public, EMSD has developed a web-based registration system (WBRS) for regulatory services divisions to receive online submissions under various EMSD legislations. It is planned that the WBRS for BEEO will be incorporated into the overall WBRS of EMSD with enhanced functions.

The proposed solution is a web-based system to provide a centralized database for buildings, processing of submissions and information dissemination under the Ordinance.

2.2 Requirement Catalogue

This requirement specification documents the user requirements for the proposed system.

2.2.1 General Characteristics

- (1) Be user-friendly;
- (2) Be reliable;
- (3) Supports multi-users and concurrent access;
- (4) Supports multi-tasking;
- (5) Enables multi-lingual input, display and output, including English and Traditional Chinese (ISO10646);
- (6) Provides high system availability and allows user to carry out system maintenance without breaking the services subject to cost justification;
- (7) For Internet platform and e-submission module in WBRS, they shall provide 24 hours a day and 7 days a week round the clock electronic service delivery channel to the public;
- (8) Provide access control on functions, limiting functions that each user groups can access according to their privileges. Administrator should be administrative right to access all functions;
- (9) E-Submissions should follow the format and manner required by ETO;
- (10) Sufficient security measures/facilities should be put in place. The submission of forms and any other information/data via electronic means should be in secured manner in order to ensure privacy, authenticity, integrity and non-repudiation of data; data encryption technology will be needed such that documents received through Internet can be decrypted before storing on server; time stamp should be provided for transactions;

REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT (EMSD)

- (11) E-Submission module in WBRs should allow e-certificate authentication in WBRs forms submission and supporting document submission. The verified and signed document and data can be retrieved as legal evidence as stipulated under Electronic Ordinance (ETO);
- (12) Unless specified, all existing features in the frontend and backend (namely RS Functions) of WBRs should be made applicable for handling the corresponding aspects of BEEO submission;
- (13) Subject to system access level, all documents and any other information/data submitted through electronic means should be allowed to be retrieved for further processing including viewing, printing, retrieval for fax and email by the system via all user terminals;
- (14) Support input and output, including screen, export excel and printer output;
- (15) Provide a selection list whenever applicable to display common choices as well as common codes for a data field to enhance the efficiency of data entry and ensure the correctness of data entry;
- (16) Confirmation will be prompted for user responses before any maintenance actions are carried out;
- (17) The system shall be web-based for operation using MS Internet Explorer (IE 7 or above) and provide data protection during data transmission in departmental network (i.e. use of SSL);
- (18) The system shall support export of data and exports/statistics for data manipulation/graphic presentation in standard OA format, e.g. readable by MS Excel. Output to XML format for conforming to the Interoperability Framework of e-Government should be provided for data exchange with other systems;
- (19) Basic data validation, e.g. check digit of HKID, numeric and data format etc, should be performed during online data entry and to eliminate disagreement among entry fields and ensure integrity of the database, safeguard against missing mandatory fields and ensure the correctness and completeness of data being entered;
- (20) The system should adopt the structured address format used by the Government. The system should also provide alternative facilities to accept self-input supporting information (secondary address) in free text format;
- (21) The system should aim at providing most up-to-date data for use by public. It is preferred that when data update from DMS backend system to the Internet platform/e-submission module in WBRs is required, it should be performed at least twice a day for each working day or initiated by request;
- (22) The system should be designed with flexibility and expandability that allow future enhancements, subsequent expansion and interfacing;
- (23) The system shall provide workflow and inbox functions for DMS records (i.e. energy label application records, listed model information update application records, complaint records and prosecution case records) so that authorized users

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

can assign a particular case to different officers to follow and users can check their inbox (“in-tray”) for incoming cases (outstanding and completed cases) to follow;

- (24) The system should aim at providing most up-to-date data to EMSD staff for e-submissions received from the public in internet platform and WBRS. System should transfer such data to update the backend system at least twice a day for each working day or initiated by request; and
- (25) Support wild-card searching to major fields during enquiry functions.

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2 Functional Requirements

2.2.2.1 General Functional Requirements

All functions provided by the existing BEEO system will be present and available in the proposed BEEO unless EMSD users explicitly advise to discard them during the SA&D stage.

2.2.2.2 List of Functional Requirements

There are 20 requirements to be implemented in DMS-BEEO system. Each requirement is assigned with a priority to indicate its importance, e.g. High (H), Medium (M) and Low (L). The following is a list of functional requirements:

Summary of 20 Requirements:

Requirement ID	Description	Target Users	Priority
Facilitating E-Submission via WBRs			
REQ-1001	Return Profile (Role List) to WBRs	User	H
REQ-1002	Facilitate the Form Filling Process	User	H
REQ-1003	Validate the Application Data Transmitting from WBRs	User	H
REQ-1004	Online Submitting the Received Application to DMS	User	H
REQ-1005	Facilitate Payment Workflow	User	H
Processing of Certificate of REA Submission			
REQ-2001	REA Case Maintenance	User	H
REQ-2002	REA Certificate Generation	User	H
REQ-2003	REA e-licence Generation	User	H
REQ-2004	Download REA Submission	User	H
Processing of Certificate of COCR Submission			
REQ-3001	COCR Case Maintenance	User	H
REQ-3002	Certificate of Compliance Registration Generation	User	H
REQ-3003	COCR e-licence Generation	User	H
REQ-3004	Download COCR Submission	User	H
Processing of FOC Submission			
REQ-4001	FOC Case Maintenance	User	H
REQ-4002	Download FOC Submission	User	H
Additional User Requirements			
REQ-5001	“Create Work” Page Handling	User	M
REQ-5002	Show the Ratio and Number of Hardcopy Cases versus e-Submission Cases in “Statistics” Page	User	M
REQ-5003	“Work (Details) Page Fine Tune	User	M
REQ-5004	Add Payment Status	User	M
REQ-5005	Add a “Grounded Date for Extension” in Application	User	M

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.1 REQ-1001 – Return Profile (Role List) to WBRs

Priority: High

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facility to retrieve eligible roles of login user for user to select the required role in WBRs

- Online application interface for validating and fetching the data of the user identity from DMS to WBRs

Proposed Solution:

- Provide APIs for validating and fetching the information of the user identity to retrieve eligible roles of login user. The information in the registered identity of the user and the role list should be returned from DMS to WBRs for the user to select the required role in WBRs

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.2 REQ-1002 – Facilitate the Form Filling Process

Priority: High

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facilities to facilitate the user in form filling

- Online application interface for retrieving the data from DMS to WBRS to facilitate the user in form filling

Proposed Solution:

- Provide API(s) to retrieve the data from DMS backend system to WBRS to facilitate the user in form filling. The retrieved data included the user particulars (e.g. REA particulars), building particulars, etc.

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.3 REQ-1003 – Validate the Application Data Transmitting from WBRS

Priority: High

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facility to validate the application data transmitting from WBRS

- Provide data interface to check the validity of the data input transmitting from WBRS to DMS
- Return the validation result to WBRS after validating the data

Proposed Solution:

- Provide API(s) to check the validity of the data input transmitting from WBRS to DMS
 - Provide checking to ensure that value in mandatory fields is provided
 - Provide checking to ensure that the value provided is valid and in correct format
- Return the validation result to WBRS after validating the data

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.4 REQ-1004 – Online Submitting the Received Application to DMS

Priority: High

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facilities to transmit the information of the applications received by WBRS to DMS

- Online application interface for transmitting the application form data from WBRS to DMS automatically
- Online application interface for transmitting the soft-copies of the supporting documents from WBRS to DMS automatically
- In case the automatic transmission process failed, means to manually trigger the transmission process for those failed application data and files should be provided
- Provide notification to the subject officer about new submission received in DMS

Proposed Solution:

- WBRS will trigger the process to transmit the information and supporting documents of the received applications to the DMS automatically
- Function will be provided to the system administrator of WBRS to manually trigger the transmission process to transmit the application data and files to DMS
- Validation will be performed in the DMS to verify the information transmitted from WBRS
- Lotus Notes Email will be sent to the subject officer to notify the following events:
 - Received application successfully transmitted from WBRS to DMS
 - Received application successfully transmitted from WBRS to DMS but failed in the validation
 - Application received in WBRS but failed to be transmitted to DMS due to server or network issue

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.5 REQ-1005 – Facilitate Payment Workflow

Priority: High

Frequency of use: Daily

Forms to be covered: 1 REA form (i.e. EA1) & 2 COCR forms (i.e. EE2 & EE3)

Functional requirement:

This function provides the following facilities to facilitate the payment process of applications

- The EEO user will arrange an interview with the applicant to verify the true copy of the submitted documents for verification of the professional qualification. WBRS payment process would be triggered only after the applicant has passed the interview
- Online application interface for notifying WBRS on approved application
- Notify user if the application is disapproved after payment

Proposed Solution:

- WBRS will initiate the payment gateway API implemented by EMSD after the status of application in DMS has been updated to a status indicating the applicant has passed the interview
- Provide API for notifying WBRS after the application is approved
- Notify user if the application is disapproved after payment

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.6 REQ-2001 – REA Case Maintenance

Priority: High

Frequency of use: Daily

Forms to be covered: 2 REA forms (i.e. EA1 & EA3)

Functional requirement:

A REA Case in DMS represents a received REA application either submitted via WBRS or by hard-copy form. This function provides the following facilities for authorized user to maintain the data of REA Cases in DMS

- Online interface for authorized user to view REA Case submitted via WBRS
- Online interface for authorized user to create REA Case submitted by hard-copy form
- Online interface for authorized user to update the data of REA Cases
- Online interface for authorized user to upload soft-copy of supporting document of the REA Case
- Online interface for authorized user to view the REA Case and uploaded supporting document
- Online interface for the authorized user to mark the REA Cases as deleted and prohibit the REA Cases for any further changes
- Keep audit trail of the create-, update- and delete-action of the REA Cases in the DMS database

Proposed Solution:

- User authentication will be provided in the DMS to allow the authorized user to access the DMS. The role and user rights will be determined in the user authentication. Authenticated user could view, create, update and delete the REA Cases if he/she has the proper user right.
- Searching function will be provided to the authorized user to look for the required REA case from the system
- Read only interface will be provided to the authorized user with “view case” permission
- Blank form for creating case will be provided to the authorized user with “create case” permission
- Editable fields for updating the case information will be available to the authorized user with “update case” permission
- Delete action will be available to the authorized user with “delete case” permission to update the case status as “deleted”
- Confirmation for create, update or delete action will be provided to the authorized user to

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

double-confirm before saving the changes to record in the database

- Additional records will be saved to the database to record the action of record creation, record updating and record deletion

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.7 REQ-2002 – REA Certificate Generation

Priority: High

Frequency of use: Daily

Forms to be covered: 2 REA forms (i.e. EA1 & EA3)

Functional requirement:

This function provides the following facilities to generate REA Certificate under different situations

- Generate draft version of the REA Certificate for preview
- Generate final version of the REA Certificate for printing and issuance after the REA Case had been approved by Chief Engineer
- Generate a duplicated copy of the final version of the REA Certificate after the application for duplicate of certificate of REA had been approved

Proposed Solution:

- Provide function to manually generate draft version of the REA Certificate which would have the required particulars of applicant merged in the document without REA reference number assigned. “Draft Copy” would also be printed on the draft version. This generation of draft version would be disabled if the REA case had been approved or rejected.
- Provide function to generate final version of the REA Certificate which would have the required particulars of applicant and assigned REA reference number merged in the document. A serial number of the generated document will be recorded in the database.
- Provide function to generate duplicated copy of the REA Certificate which would have the required particulars of applicant and assigned REA reference number merged in the document. The same serial number as the first release version with suffix to indicate the count of the duplicated copy generated will be recorded in the database.

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.8 REQ-2003 – REA e-licence Generation

Priority: High

Frequency of use: Daily

Forms to be covered: 2 REA forms (i.e. EA1 & EA3)

Functional requirement:

This function provides the following facilities to generate REA e-licence under different situations:

- Reserve the key from core licence service when new licence is ready for issue
- Map the key to the licence and store it after the core licence service has returned the key
- Generate a QR Code for appending to the PDF licence file
- Append digital signing and protection to digital signed PDF with long term validation (LTV)
- Distribute email with e-licence
- Provide “Re-issue” function for authorized user to re-issue the e-licence with an updated QR Code to the applicant

Proposed Solution:

- Provide function to reserve the key from core licence service when new licence is ready for issue
- Provide function to map the key to the licence and store it after the core licence service has returned the key
- Provide function to generate a QR Code via core licence service by key, and then generate the e-licence with QR Code for appending to the PDF licence file
- Provide function to append digital signing and protection to digital signed PDF with long term validation via core licence service
- Provide function to prepare the email with licence attachment and distribute the email, via core licence service, to the applicant. The time lead for sending the certificate should be configurable
- Provide “Re-issue” function for authorized user to re-issue the e-licence with an updated QR code to the applicant. A new button named “Re-issue” is to be added for authorized user to trigger the “Re-issue” function

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.9 REQ-2004 – Download REA Submission

Priority: High

Frequency of use: Daily

Form to be covered: EA3 only

Functional requirement:

This function provides the following facility for the authorized user to download the required REA Case:

- Provide a download function for the authorized user to download and/or print the detail of REA submission

Proposed Solution:

- Provide a download function for the authorized user to download and/or print the EA3 submission details. A new button named “Download” will be shown on the EA3 record list for the authorized user to download and/or print the details of EA3 submission

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.10 REQ-3001 – COCR Case Maintenance

Priority: High

Frequency of use: Daily

Forms to be covered: 3 COCR forms (i.e. EE1 & EE2 & EE3)

Functional requirement:

A COCR Case in DMS represents a received COCR application either submitted via WBRS or by hard-copy form. This function provides the following facilities for authorized user to maintain the data of COCR Cases in DMS

- Online interface for authorized user to view COCR Case submitted via WBRS
- Online interface for authorized user to create COCR Case submitted by hard-copy form
- Online interface for authorized user to update the data of COCR Cases
- Online interface for authorized user to upload soft-copy of supporting document of the COCR Case
- Online interface for authorized user to view the COCR Case and uploaded supporting document
- Online interface for the authorized user to mark the COCR Cases as deleted and prohibit the COCR Cases for any further changes
- Keep audit trail of the create-, update- and delete-action of the COCR Cases in the DMS database

Proposed Solution:

- User authentication will be provided in the DMS to allow the authorized user to access the DMS. The role and user rights will be determined in the user authentication. Authenticated user could view, create, update and delete the COCR Cases if he/she has the proper user right.
- Searching function will be provided to the authorized user to look for the required COCR case from the system
- Read only interface will be provided to the authorized user with “view case” permission
- Blank form for creating case will be provided to the authorized user with “create case” permission
- Editable fields for updating the case information will be available to the authorized user with “update case” permission
- Delete action will be available to the authorized user with “delete case” permission to update the case status as “deleted”

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- Confirmation for create, update or delete action will be provided to the authorized user to double-confirm before saving the changes to record in the database
- Additional records will be saved to the database to record the action of record creation, record updating and record deletion

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.11 REQ-3002 – COCR Certificate Generation

Priority: High

Frequency of use: Daily

Form to be covered: EE2 Only

Functional requirement:

This function provides the following facilities to generate COCR Certificate under different situations

- Generate draft version of the COCR Certificate for preview
- Generate final version of the COCR Certificate for printing and issuance after the COCR Case had been approved by Chief Engineer
- Generate a duplicated copy of the final version of the REA Certificate after the application for duplicate of certificate of REA had been approved

Proposed Solution:

- Provide function to manually generate draft version of the COCR Certificate which would have the required particulars from the COCR case merged in the document without COCR reference number assigned. “Draft Copy” would also be printed on the draft version. This generation of draft version would be disabled if the COCR case had been approved or rejected
- Provide function to generate final version of the COCR Certificate which would have the required particulars of applicant and assigned REA reference number merged in the document. A serial number of the generated document will be recorded in the database
- Provide function to generate duplicated copy of the COCR Certificate which would have the required particulars of applicant and assigned COCR reference number merged in the document. The same serial number as the first release version with suffix to indicate the count of the duplicated copy generated will be recorded in the database

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.12 REQ-3003 – COCR e-licence Generation

Priority: High

Frequency of use: Daily

Form to be covered: EE2 Only

Functional requirement:

This function provides the following facilities to generate COCR e-licence under different situations

- Reserve the key from core licence service when new licence is ready for issue
- Map the key to the licence and store it after the core licence service has returned the key
- Generate a QR Code for appending to the PDF licence file
- Append digital signing and protection to digital signed PDF with long term validation (LTV)
- Distribute email with e-licence
- Provide “Re-issue” function for authorized user to re-issue the e-licence with an updated QR Code to the applicant

Proposed Solution:

- Provide function to reserve the key from core licence service when new licence is ready for issue
- Provide function to map the key to the licence and store it after the core licence service has returned the key
- Provide function to generate a QR Code via core licence service by key, and then generate the e-licence with QR Code for appending to the PDF licence file
- Provide function to append digital signing and protection to digital signed PDF with long term validation via core licence service
- Provide function to prepare the email with licence attachment and distribute the email, via core licence service, to the applicant. The time lead for sending the certificate should be configurable
- Provide “Re-issue” function for authorized user to re-issue the e-licence with an updated QR code to the applicant. A new button named “Re-issue” is to be added for authorized user to trigger the “Re-issue” function

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.13 REQ-3004 – Download COCR Submission

Priority: High

Frequency of use: Daily

Forms to be covered: 3 COCR forms (i.e. EE1 & EE2 & EE3)

Functional requirement:

This function provides the following facility for the authorized user to download the required COCR Case

- Provide a download function for the authorized user to download and/or print the detail of COCR submission

Proposed Solution:

- Provide a download function for the authorized user to down the COCR submission details. A new button named “Download” will be shown on the COCR record list for the authorized user to download and/or print the details of COCR submission

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.14 REQ-4001 – FOC Case Maintenance

Priority: High

Frequency of use: Daily

Form to be covered: EE4 only

Functional requirement:

An FOC Case in DMS represents a received FOC application either submitted via WBRS or by hard-copy form. This function provides the following facilities for authorized user to maintain the data of FOC Cases in DMS

- Online interface for authorized user to view FOC Case submitted via WBRS
- Online interface for authorized user to create FOC Case submitted by hard-copy form
- Online interface for authorized user to update the data of FOC Cases
- Online interface for authorized user to upload soft-copy of supporting document of the FOC Case
- Online interface for authorized user to view the FOC Case and uploaded supporting document
- Online interface for the authorized user to mark the FOC Cases as deleted and prohibit the FOC Case for any further changes
- Keep audit trail of the create-, update- and delete-action of the FOC Cases in the DMS database

Proposed Solution:

- User authentication will be provided in the DMS to allow the authorized user to access the DMS. The role and user rights will be determined in the user authentication. Authenticated user could view, create, update and delete the FOC Cases if he/she has the proper user right.
- Searching function will be provided to the authorized user to look for the required FOC case from the system
- Read only interface will be provided to the authorized user with “view case” permission
- Blank form for creating case will be provided to the authorized user with “create case” permission
- Editable fields for updating the case information will be available to the authorized user with “update case” permission
- Delete action will be available to the authorized user with “delete case” permission to update the case status as “deleted”

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- Confirmation for create, update or delete action will be provided to the user to double-confirm before saving the changes to record in the database
- Additional records will be saved to the database to record the action of record creation, record updating and record deletion

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.15 REQ-4002 – Download FOC Submission

Priority: High

Frequency of use: Daily

Form to be covered: EE4 Only

Functional requirement:

This function provides the following facility for the authorized user to download the required FOC Case

- Provide a download function for the authorized user to download and/or print the detail of EE4 submission

Proposed Solution:

- Provide a download function for the authorized user to down the EE4 submission details. A new button named “Download” will be shown on the EE4 record list for the authorized user to download and/or print the details of EE4 submission

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.16 REQ-5001 – “Create Work” Page Handling

Priority: Medium

Frequency of use: Daily

Forms to be covered: 3 FOC forms (i.e. EE4, EE-SU & EE-CH)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facilities to facilitate authorized user to process the required FOC Case

- Skip “Create Work” Page in e-submission flow to eliminate the unnecessary steps within the process
- Create a hyperlink linking the submission details in hardcopy flow for the authorized user to preview the application details

Proposed Solution:

- Under the e-Submission flow, the “Create Work” page will be skipped, the submission data will be passed directly to “Work (Details)” page and can be searched in “Work In Progress” section
- Under the hard-copy flow, create a hyperlink linking the submission details for the authorized user to preview the application details

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

**2.2.2.2.17 REQ-5002 – Show the Ratio and Number of Hardcopy Cases versus e-
Submission Cases in “Statistics” Page**

Priority: Medium

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facility for authorized user to gain insight of data

- Show a ratio of hardcopy cases versus e-submission cases in “Statistics” page
- Show the number of hardcopy cases versus e-submission cases in “Statistics” page

Proposed Solution:

- Show a ratio of hardcopy cases versus e-submission cases in “Statistics” page
- Show the number of hardcopy cases versus e-submission cases in “Statistics” page

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.18 REQ-5003 – “Work (Details)” Page Fine Tune

Priority: Medium

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function fine tunes the “Work (Details)” Page to increase the user-friendliness.

- Increase the field length of “Floor” and “Block”
- Provide a copy function for user to copy the inputted location information into “Work Location” field in hardcopy flow
- Change the field type of “Chiller Type” & “Major Space Type (Lighting Installation)” to a field type which allows multiple selection (e.g. checkbox)
- Send out a reminder to EEO users regarding “Anticipated Occupation Approval Date” to avoid the delay case (acknowledge letter)

Proposed Solution:

- Increase the field length of “Floor” and “Block” to a length same as “Other Description”
- Provide a copy function for user to copy the inputted location information into “Work Location” field in hardcopy flow
- Change the field type of “Chiller Type” & “Major Space Type (Lighting Installation)” to a field type which allows multiple selection (e.g. checkbox)
- Check “Anticipated Occupation Approval Date” with 3 months, and send out a reminder to EEO users a month before the expiry date to avoid the delay case (acknowledge letter)

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.19 REQ-5004 – Add Payment Status

Priority: Medium

Frequency of use: Daily

Forms to be covered:

8 application forms are to be handled, 2 forms (i.e. EA1 & EA3) for Registered Energy Assessor (REA), 3 forms (i.e. EE1 & EE2 & EE3) for Certificate of Compliance Registration (COCR), and 3 forms (i.e. EE4 & EE-CH & EE-SU) for Form of Compliance (FOC)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facilities to facilitate the payment process

- The EEO user will arrange an interview with the applicant to verify the true copy of the submitted documents for verification of the professional qualification. Add a status “Interview” to indicate the applicant is under the interview process
- Add a status “Payment Completed” to indicate the application fee is settled
- Add a status “Payment Overdue” to indicate overdue payment

Proposed Solution:

- Add a status “Interview” to indicate the applicant is under the interview process and thus the payment process has not yet been started
- Add a status “Payment Completed” to indicate the application fee is settled
- Add a status “Payment Overdue” to indicate overdue payment for EEO user to follow up manually. EEO user would contact the applicant for the overdue cases and re-initiate the payment process if needed

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.2.2.20 REQ-5005 – Add a “Grounded Date for Extension” in Application

Priority: Medium

Frequency of use: Daily

Forms to be covered:

2 COCR forms (i.e. EE1 & EE2) & 3 FOC forms (EE4, EE-SU & EE-CH)

- EE-SU will be merged into EE1, EE2, EE3, and EE4
- EE-CH should be submitted as an attachment instead of a standalone form by 2021 Q4

Functional requirement:

This function provides the following facilities for authorized user to process the COCR Stage One & Stage Two and FOC Cases

- Add a “Grounded Date for Extension” in applications to indicate the grounded date of extension

Proposed Solution:

- Add a “Grounded Date for Extension” in COCR Stage One, COCR Stage 2, and FOC applications to indicate the grounded date of extension correspondingly

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.2.3 Non-Functional Requirements

- The system should provide facilities for users on form input in DMS for improving accessibility, such as date-picker, drop down list for known selection, pop-up selection.
- The system should provide copy function for form input (case maintenance, inspection maintenance, etc.) to simplify users' actions.
- The system should provide printer friendly version of each generation reports and letters.
- The system should be able to provide reasonable response time under normal situations. To meet this requirement, an online response time of 5 seconds should be assumed when sizing the system configuration required.
- For printing functions, the response time for compiling simple reports shall be within 5 minutes, while that for complex reports shall be within 10 minutes. The response time is defined as the elapsed time between the user pressing a key to submit the printing job and the report starts printing.

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.3 Audit, Control and Security related Requirements

The following is a list of audit, control and security related requirements:

Requirement ID	Description	Target Users	Priority
System Audit Requirement			
ACS-0001	System Log Audit	User	H
System Access Control Requirements			
ACS-0002	Physical Access and Security	User	H
ACS-0003	System Access	User	H
ACS-0004	System Performance and Usage Reporting	User	H
System Backup and Recovery Requirements			
ACS-0005	System Backup Requirement	User	H
ACS-0006	System Recovery Requirement	User	H
Disaster Recovery Requirements			
ACS-0007	Off-site Backup Arrangement	User	H
ACS-0008	Disaster Recovery	User	H
Reporting			
ACS-0009	Management Reports	User	H
ACS-0010	Operational Reports	User	H
ACS-0011	Ad Hoc Reports	User	H

2.3.1 System Audit Requirement

2.3.1.1 ACS-0001 System Log Audit

Priority: High

Frequency of use: Daily

Functional requirement:

The system should provide audit trails on system access and usage. All the audit log records are proposed to be retained for 12 months. The system should also provide reporting on audit log records based on specified criteria. Only the system administrators with appropriate authority should be allowed to access, retrieve and print the audit log records.

Proposed solution:

- Activity log of all system login and transaction input, rejected and accepted will be kept for audit trail. Reporting functions will also be provided to retrieve audit log records in accordance with specified criteria.
- The audit logs required for different functions related to system are summarized as follows:
 - Data Creation / Update / Deletion
 - User Actions
 - User Login
 - User Logout
 - Change on User Information

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.3.2 System Access Control Requirements

There are three system access control requirements, namely:

ACS-0002 Physical Access and Security

ACS-0003 System Access

ACS-0004 System Performance and Usage Reporting

2.3.2.1 ACS-0002 Physical Access and Security

Priority: High

Frequency of use: Daily

Functional requirement:

The computer system should be installed with high physical security where access is restricted to authorized personnel only. All the storage media should also be kept in secure locations to prevent loss and sabotage.

Proposed Solution:

- The system would reside servers and storage media in controlled and secure location, such as EMSD data center, for ensuring the security level
- Only system administrators are provided with full access to the physical server
- Read-only system accounts could be created for regular operations or troubleshooting purpose
- The system should conform to the following established OGCIO guidelines and standards on physical access and security:
 - Security Regulations
 - Baseline IT Security Policy
 - Internet Gateway Security Guidelines
 - Security Risk Assessment & Audit Guidelines

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.3.2.2 ACS-0003 System Access

Priority: High

Frequency of use: Daily

Functional requirement:

The system should provide facilities to restrict system users with different authority levels to access different functions in the system on a need basis. Password control for each individual is required.

Adequate security measures should be provided to ensure the security of the system and guard against intrusion and attack from external parties. The system should be able to detect and log any intrusion and attack on the system and generate alerts.

Proposed solution:

- Each system users will be assigned a unique user account name for accessing the system. A password, which associated with each user account, is used for authentication purpose.
- Authority levels will be assigned to the user accounts to govern access rights on the system functions.
- Security features will be implemented to guard against intrusion and attack from external parties. Reports on attempted intrusion will be provided.

2.3.2.3 ACS-0004 System Performance and Usage Reporting

Priority: High

Frequency of use: Daily

Functional requirement:

The system should provide statistics on CPU, memory, disk I/O and disk space utilization. The system should also provide reporting on the usage of database resources and network traffic. This information will be used to analyze and project the growth and usage of the system.

Proposed Solution:

General system performance and usage monitoring of the proposed system would be provided using standard packages supplied with the operating systems.

2.3.3 System Backup and Recovery Requirements

There are two system backup and recovery requirements, namely:

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

ACS-0005 System Backup Requirement

ACS-0006 System Recovery Requirement

2.3.3.1 ACS-0005 System Backup Requirement

Priority: High

Frequency of use: Daily

Functional requirement:

System backup facilities should be provided to enable both data backup to be performed daily and full system back up to be performed weekly and also before and after any change and upgrade of system files.

Proposed Solution:

- A database management system with standard database management functions, including database backup and recovery, should be chosen.
- System backup and recovery utilities can be installed to support full-system backup and recovery.

2.3.3.2 ACS-0006 System Recovery Requirement

Priority: High

Frequency of use: Daily

Functional requirement:

In case of database problems that database restoration is needed, database backup produced on previous working day by close of business could be available. Depending on the actual situation, either local or off-site backup tape should be applied to complete the recovery. Manual input for those lost data records would be performed afterwards in order to complete the recovery of the entire database. The data loss is further minimized by the use of local resilience database servers with RAID disks.

Proposed Solution:

- Tools provided in ACS-0005 System Backup Requirements above should support such system and database recovery requirements
- The database backup/recovery utilities should be configured to log transactions and archive the transactions on a regular basis

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- COTS system backup and recovery utilities can be installed to support full-system recovery.

2.3.4 Disaster Recovery Requirements

There are two disaster recovery requirements, namely:

ACS-0007 Off-site Backup Arrangement
ACS-0008 Disaster Recovery

2.3.4.1 ACS-0007 Off-site Backup Arrangement

Priority: High

Frequency of use: Daily

Functional requirement:

For each daily, weekly, monthly database backup or weekly system backup, two sets of backup tapes will be produced. One set of the backup tapes will be kept locally while another set will be sent to and stored at an off-site location, probably the DR location for secure storage.

Proposed Solution:

The system should provide the backup tools to perform the system and data backup.

2.3.4.2 ACS-0008 Disaster Recovery

Priority: High

Frequency of use: Daily

Functional requirement:

A disaster recovery plan with detailed steps showing the procedures to handle a disaster should be formulated. In general, an EMSD staff will be in-charge for the declaration of the disaster and formation of the disaster recovery working team. Facilities should be provided to cater disastrous situation causing prolonged system failure and shutdown.

Proposed Solution:

- The system would provide disaster recovery plan for the system
- The disaster recovery location should be remote from the primary site
- The disaster recovery site would contain compatible server(s) to restore the system from daily / weekly backup

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- The details to re-setup the production server will be described in the disaster recovery plan.

2.3.5 Reporting

DMS-BEEO should provide functionalities for users to produce reports of the following types:

- Management reports
- Operational reports
- Ad hoc reports

2.3.5.1 ACS-0009 Management Reports

Priority: High

Frequency of use: Daily

Functional requirement:

DMS-BEEO should provide functionality with user-friendly interfaces for EEO to generate and print the standard management reports regularly or whenever required by management. The management report contents should include the followings:

- Statistical Summary of Received COCR Stage One Declaration per Reporting Period
- Statistical Summary of Received COCR Stage Two Declaration per Reporting Period
- Statistical Summary of Received COCR Renewal per Reporting Period
- Statistical Summary of Issued / Renewed COCR per Reporting Period
- Statistical Summary of COCR to be expired per month in next 12 months
- Statistical Summary of Received FOC per Reporting Period
- Statistical Summary of Received Energy Audit Form per Reporting Period
- Statistical Summary of Buildings with the next Energy Audit to be carried out in next 12 months
- Statistical Summary of Issued Improvement Notices per Reporting Period
- Statistical Summary of Buildings being inspected per month in past 12 months
- Statistical Summary of Buildings to be inspected per month in next 12 months
- Statistical Summary of Received REA Applications, Issued & Renewed REA Certificate (including those from Public Officer) per Reporting Period

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- Statistical Summary of REA to be expired per month in next 12 months

Proposed Solution:

Report functionality would be provided for the users to generate the required management reports regularly or on need basis. Individual reports would be in pre-defined format and generated through the report functions provided by DMS-BEEO. It offers a variety of report formats including PDF, CSV, Image (TIFF) as well as Microsoft Office Word and Excel for distribution. Report viewer and printing functions would be provided for the users to view on desktop or to print in hard-copy format for further reading.

2.3.5.2 ACS-0010 Operational Reports

Priority: High

Frequency of use: Daily

Functional requirement:

DMS-BEEO should provide functionality with user-friendly interfaces for EEO to generate and print the standard operational reports regularly or whenever required during operation. The operational report contents should include the followings:

- List of Received COCR Stage One Declaration per Reporting Period
- List of Received COCR Stage Two Declaration per Reporting Period
- List of Buildings under COCR Stage One Declaration
- List of Received COCR Renewal per Reporting Period
- List of Issued / Renewed COCR per Reporting Period
- List of COCR Register
- List of COCR to be expired within 12 months / 6 months / 3 months
- List of Received FOC per Reporting Period
- List of Received Energy Audit Form per Reporting Period
- List of Buildings with the next Energy Audit to be carried out in 12 months / 6 months / 3 months
- List of Appeals Received per Reporting Period
- List of Issued Improvement Notices per Reporting Period

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- List of Buildings being inspected in past 12 months / 6 months / 3 months
- List of Buildings to be inspected in next 12 months / 6 months / 3 months
- List of Received Applications for Period Extension per Reporting Period
- List of Received Applications for Exemptions per Reporting Period
- List of Received REA Applications per Reporting Period
- List of Received REA Applications from Public Officer per Reporting Period
- List of REA Register
- List of Issued / Renewed REA Certificate per Reporting Period
- List of REA to be expired within 12 months / 6 months / 3 months

Proposed Solution:

Report functionality would be provided for the users to generate the required operational reports regularly or on need basis. Individual reports would be in pre-defined format and generated through the report functions provided by DMS-BEEO. It offers a variety of report formats including PDF, CSV, Image (TIFF) as well as Microsoft Office Word and Excel for distribution. Report viewer and printing functions would be provided for the users to view on desktop or to print in hard-copy format for further reading.

2.3.5.3 ACS-0011 Ad Hoc Reports

Priority: High

Frequency of use: Daily

Functional requirement:

DMS-BEEO should provide functionality with user-friendly interfaces for EEO to create reports on their own in ad hoc basis upon management request.

Proposed Solution:

Report builder functions with user-friendly interfaces would be provided for the users to create any ad-hoc reports on need basis. Ad-hoc reports being created could be run in any pre-configured workstation. It offers a variety of report formats including PDF, CSV, Microsoft Office Word and Excel for distribution. Report viewer and printing functions would be provided for the users to view on desktop or to print in hard-copy format for further reading.

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

2.4 Constraints List

The constraints list identifies any possible constraints and impacts to system design and/or implementation of the proposed system.

2.4.1 Use of Equipment

Existing hardware equipment of EEO will be utilized as part of the proposed system if applicable.

2.4.2 Interface with Other Systems

The proposed system will interface with other systems of EMSD like MEELS, LEOS, EORS, EMSD website as well as Government Central Internet Gateway for website information update. The exact interface implementation would be subject to the interfacing capability of those systems.

2.4.3 Manual and Clerical Procedures

Appropriate manual procedures should be in place in order to be in line with the implementation of the proposed system. However, changes to the overall operation should be kept to minimal to avoid unnecessary complications.

2.4.4 Input and Output

Each electronic submission via Internet or e-mail must not be too large for performance and reliability. Moreover, the format of submission should adhere to the guidelines stipulated in “Manner & Format of Electronic Records” published by the HKSAR Government.

2.4.5 Operational Constraints

When a digital signature is required, only a digital signature supported by a recognised certificate issued by a certification authority recognised by the Government Chief Information Officer under the Electronic Transactions Ordinance is acceptable. In other words, overseas companies and parties who do not have a recognised digital certificate under ETO cannot fulfil the prerequisite of the application/information submission.

2.4.6 Business Organization and Policy

The business rules and operations are governed by the following ordinances and regulations:

- Building Energy Efficiency Ordinance (Cap. 610)
- Building Energy Code (BEC) for the Buildings Energy Efficiency Ordinance
- Energy Audit Code (EAC) for the Buildings Energy Efficiency Ordinance

The implementation of the system should follow the regulations as provided in the Electronic Transactions Ordinance (ETO) with the provision of exemptions allowed in the ordinance

**REQUIREMENTS SPECIFICATIONS (RS) ON DATA MANAGEMENT SYSTEM FOR BUILDINGS
ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF ELECTRICAL
AND MECHANICAL SERVICES DEPARTMENT (EMSD)**

- End of Document -