**Current Environment Description**

**on**

**Data Management System**

**for**

**Buildings Energy Efficiency Ordinance**

**for**

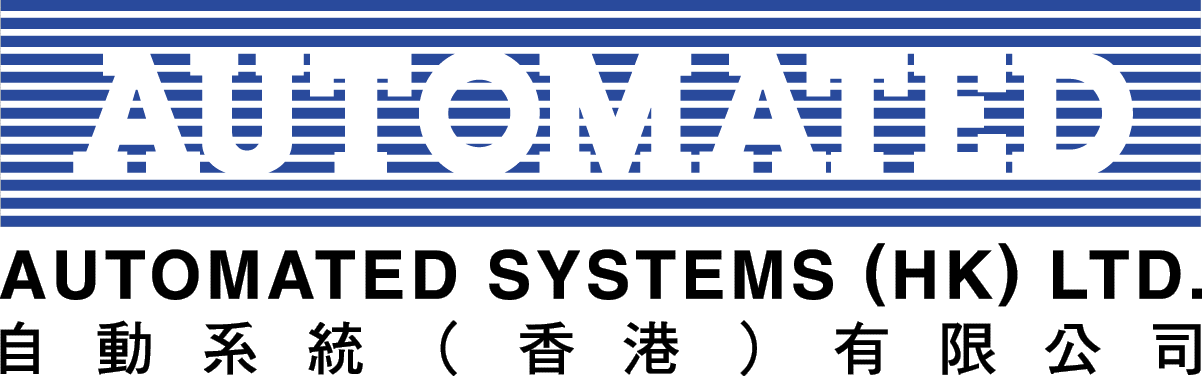
**Energy Efficiency Office**

**of**

**Electrical and Mechanical Services Department (EMSD)**



By



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**November 2021**

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# 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. |

# Current Environment Description

## **Overview**

### **Purpose of this Document**

This Current Environment Description has been produced to describe the services provided by the existing environment. It helps readers to understand the current situation, and hence the user requirements as well as the required system.

### **Objectives**

The objectives of conducting this stage are listed as follow:

1. To understand the current environment and deliver a description of current services
2. To identify the problems associated with the current environment that are to be resolved by the enhanced system
3. To identify the additional services to be provided by the enhanced system
4. To provide a logical view of the current services
5. To establish roles, especially for the users in the project.

## **Current System Description**

### **Current 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 on-line 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.

### **System Objective of DMS**

The objectives of implementing the DMS are:

1. To facilitate automation of the process of checking, vetting and approval of submissions, and generation of reports, certificates, registers and database of buildings under Buildings Efficiency Ordinance
2. To streamline the enforcement functions under the Ordinance
3. To provide internet platform for public or any relevant parties to search for status of application, registers of Certificate of Compliance Registration (COCR) and Registered Energy Assessor (REA), records of Form of Compliance (FOC) and Improvement Notice (IN), and acts as an interactive platform for disseminating energy efficiency and conservation messages to the general public
4. To integrate with Web-Based Registration Services (WBRS) to provide means for
5. electronic application submissions to the public

### **Business Areas Served**

The following divisions, sub-divisions and units of EMSD are the major parties involved:

1. Energy Efficiency Office (EEO)
   * 1. Buildings Energy Efficiency Ordinance (Cap. 610)

### **Hardware and Software Usage**

This section mainly describes the current computer hardware configuration, if any.

1. BEEO

The hardware configuration of the system is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Description | | | Qty |
| **Web and Application Server** | | | 1 |
| Environment | DEV/UAT | Production |
|  | * 2 Core CPU * 16GB RAM * 100GB Hard-disk | * 4 Core CPU * 16GB RAM * 300GB Hard-disk |
| **Database Server** | | | 1 |
| Environment | DEV/UAT | Production |
|  | * 2 Core CPU * 16GB RAM * 100GB Hard-disk | * 4 Core CPU * 32GB RAM * 300GB Hard-disk |

The software used on the workstation is as follows:

|  |  |
| --- | --- |
| **Software Name** | Window Server |
| **Version** | Window Server 2019 Standard |
| **Description** | Operation System for Web and Application Server, and Database Server |

|  |  |
| --- | --- |
| **Software Name** | Internet Information Services |
| **Version** | Internet Information Services 10 |
| **Description** | Web and Application Server |

|  |  |
| --- | --- |
| **Software Name** | Microsoft SQL Server |
| **Version** | Microsoft SQL Server 2017 |
| **Description** | Database Server |

1. WBRS – Web-based Registration System  
     
   The hardware configuration of the system is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Description | | | Qty |
| **Web and Application Server** | | | 1 |
| Environment | DEV/UAT | Production |
|  | * 2 Core CPU * 16GB RAM * 100GB Hard-disk | * 4 Core CPU * 16GB RAM * 300GB Hard-disk |
| **Database Server** | | | 1 |
| Environment | DEV/UAT | Production |
|  | * 2 Core CPU * 16GB RAM * 100GB Hard-disk | * 4 Core CPU * 32GB RAM * 300GB Hard-disk |

The software used on the workstation is as follows:

|  |  |
| --- | --- |
| **Software Name** | Window Server |
| **Version** | Window Server 2019 Standard |
| **Description** | Operation System for Web and Application Server, and Database Server |

|  |  |
| --- | --- |
| **Software Name** | Apache |
| **Version** | 2.4.48 |
| **Description** | Web Server |

|  |  |
| --- | --- |
| **Software Name** | WildFly 16 |
| **Version** | 16 |
| **Description** | Application Server |

|  |  |
| --- | --- |
| **Software Name** | AdoptOpenJDK |
| **Version** | 8u292-b10 |
| **Description** | Application Server |

|  |  |
| --- | --- |
| **Software Name** | Microsoft SQL Server |
| **Version** | Microsoft SQL Server 2014 SP3 |
| **Description** | Database Server |

## **Current Process Description**

### **Current Context Diagram**

#### BEEO



#### WBRS

Current System of

WBRS

Public

applications

invoices

and

receipts

payments

Backend

System

application

data

validation

rules

Financial

Institutes

reconciliation

files

payment records

Department

Officers

payments

reports

supporting

documents

### **Current Physical Data Flow Diagram**

#### Registered Energy Assessor Submission





#### WBRS



### **Process Description**

#### BEEO

The processes in BEEO are generally described below:

| **Process ID** | Process Name | **Description** |
| --- | --- | --- |
| 1 | Application Form Submission | This process involves recording the application receive date which indicate the start of the performance pledge for processing the application |
| 2 | Create Case | This process involves issuing the case reference number of the received application which become the key information in the following processes |
| 3 | Initial screening | The process involves checking of the received application and also assigning the subject inspector to follow up the submission |
| 4 | Input Received Case Data | The process involves verifying any outstanding or invalid information in the submitted application and inputting the information of the received application to the data store |
| 5 | Recommend Registration | The process involves specifying the recommendation to approve the application or not |
| 6 | Support Recommendation | The process involves specifying whether the recommendation from Subject Engineer is supported |
| 7 | Approve Registration | The process involves approving the application according to the recommendation from Subject Engineer and support of Senior Engineer |
| 8 | Update Registry | The process involves updating the registry according to the approval |
| 9 | Prepare confirmation letter and Certificate | The process involves preparation of confirmation letter according to the approved results of the application and issuing the certificate if the application results in any registry update |

#### WBRS

The processes in WBRS are generally described below:

| **Process ID** | Process Name | **Description** |
| --- | --- | --- |
| **1. Application Submission** | | |
| 1.1 | Application Submission | This process provides the interfaces for the applicant to input data and upload required supporting document of application, handles application validation, updates application history, allows saving local copy of application data and resuming the application submission by uploading the saved application data |
| 1.2 | Application Forwarding | This process handles the workflow of the application according to the requirement of the application, such as supplementary signature or application fee |
| 1.3 | Supplementary Documents Submission | This process provides the interfaces for the applicant to upload supplementary documents to submitted application |
| 1.4 | Application Withdrawal | This process provides the interfaces for the applicant to withdrawal his/her outstanding application |
| 1.5 | Backend System Interface | This process handles the retrieval of registered information from and submitting the received application to the relevant backend systems |
| 1.6 | Application Enquiry | This process provides the interface for the authorized operator to enquire the application information |
| **2. Application Signing** | | |
| 2.1 | Application Signing | This process provides the interfaces for the applicant to digitally sign the application submitted by him/herself |
| 2.2 | Supplementary Application Signing | This process provides the interfaces for the applicant to digitally signed the application which was submitted by other applicants but designated to the applicant to sign |
| **3. Payment** | | |
| 3.1 | Payment Initiation | This process provides the interfaces for the applicant to select the application of outstanding payment and the payment method to settle the required application fee |
| 3.2 | Generate Invoice | This process handles the generation of invoice if the applicant selected to pay the application fee by cash or cheque |
| 3.3 | Payment Collection | This process provides the interfaces for the authorized operator to update the system when the required application fee(s) of the application(s) had been collected |
| 3.4 | Generate Receipt | This process handles the generation of receipt at the end of the payment collection process |
| 3.5 | Payment Cancelling | This process provides the interfaces for the authorized operator to cancel the outstanding payment |
| 3.6 | Payment Reporting | This process provides the interfaces for the authorized operator to generate payment reports |
| **4. Users Maintenance** | | |
| 4.1 | User Registration | This process provides the online interfaces to the public or the authorized operator to register the user account |
| 4.2 | User Access Control | This process handles the user permission in access the features provided in the system |
| 4.3 | User Profile Update | This process provides the interface for the authorized operator to update the information of user |

## **Current Entity Description**

### **Major Entity Description**

#### BEEO

|  |  |
| --- | --- |
| **Entity Name** | **Description / Remark** |
| REA Case | Information of Received REA Application |
| REA Registry | Information of Approved REA |
| COCR Case | Information of Received COCR Application |
| COCR Registry | Information of Approved COCR Application |
| FOC | Information of Received FOC submission |
| Energy Audit | Information of Received Energy Audit submission |
| Inspection | Site Inspection Record |
| Building Information | Model entity for storing technical information of Refrigerator |

#### WBRS

|  |  |
| --- | --- |
| **Entity Name** | **Description / Remark** |
| Application Form | Application entity |
| Application Payment | Mapping entity for application and payment |
| Payment Summary | Payment entity |
| Application Payment Status | Payment status entity for storing change of payment status |
| Application Attachments | Attachment entity for application |
| Division Form | Multiple entities for representing input forms for different division |
| User Information | User Profile entity |