

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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BUILDINGS ENERGY EFFICIENCY ORDINANCE FOR ENERGY EFFICIENCY OFFICE OF
ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT (EMSD)**



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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: _____

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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. CURRENT ENVIRONMENT DESCRIPTION

2.1 Overview

2.1.1 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.

2.1.2 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.



2.2 Current System Description

2.2.1 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.

2.2.2 System Objective of DMS

The objectives of implementing the DMS are:

- (a) 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
- (b) To streamline the enforcement functions under the Ordinance
- (c) 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
- (d) To integrate with Web-Based Registration Services (WBRS) to provide means for
- (e) electronic application submissions to the public

2.2.3 Business Areas Served

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

- (a) Energy Efficiency Office (EEO)
 - i) Buildings Energy Efficiency Ordinance (Cap. 610)



2.2.4 Hardware and Software Usage

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

(a) BEEO

The hardware configuration of the system is as follows:

Description			Qty
Web and Application Server			1
Environment	DEV/UAT	Production	
	<ul style="list-style-type: none"> 2 Core CPU 16GB RAM 100GB Hard-disk 	<ul style="list-style-type: none"> 4 Core CPU 16GB RAM 300GB Hard-disk 	
Database Server			1
Environment	DEV/UAT	Production	
	<ul style="list-style-type: none"> 2 Core CPU 16GB RAM 100GB Hard-disk 	<ul style="list-style-type: none"> 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

(b) 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	
	<ul style="list-style-type: none"> 2 Core CPU 16GB RAM 100GB Hard-disk 	<ul style="list-style-type: none"> 4 Core CPU 16GB RAM 300GB Hard-disk 	
Database Server			1
Environment	DEV/UAT	Production	
	<ul style="list-style-type: none"> 2 Core CPU 16GB RAM 100GB Hard-disk 	<ul style="list-style-type: none"> 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

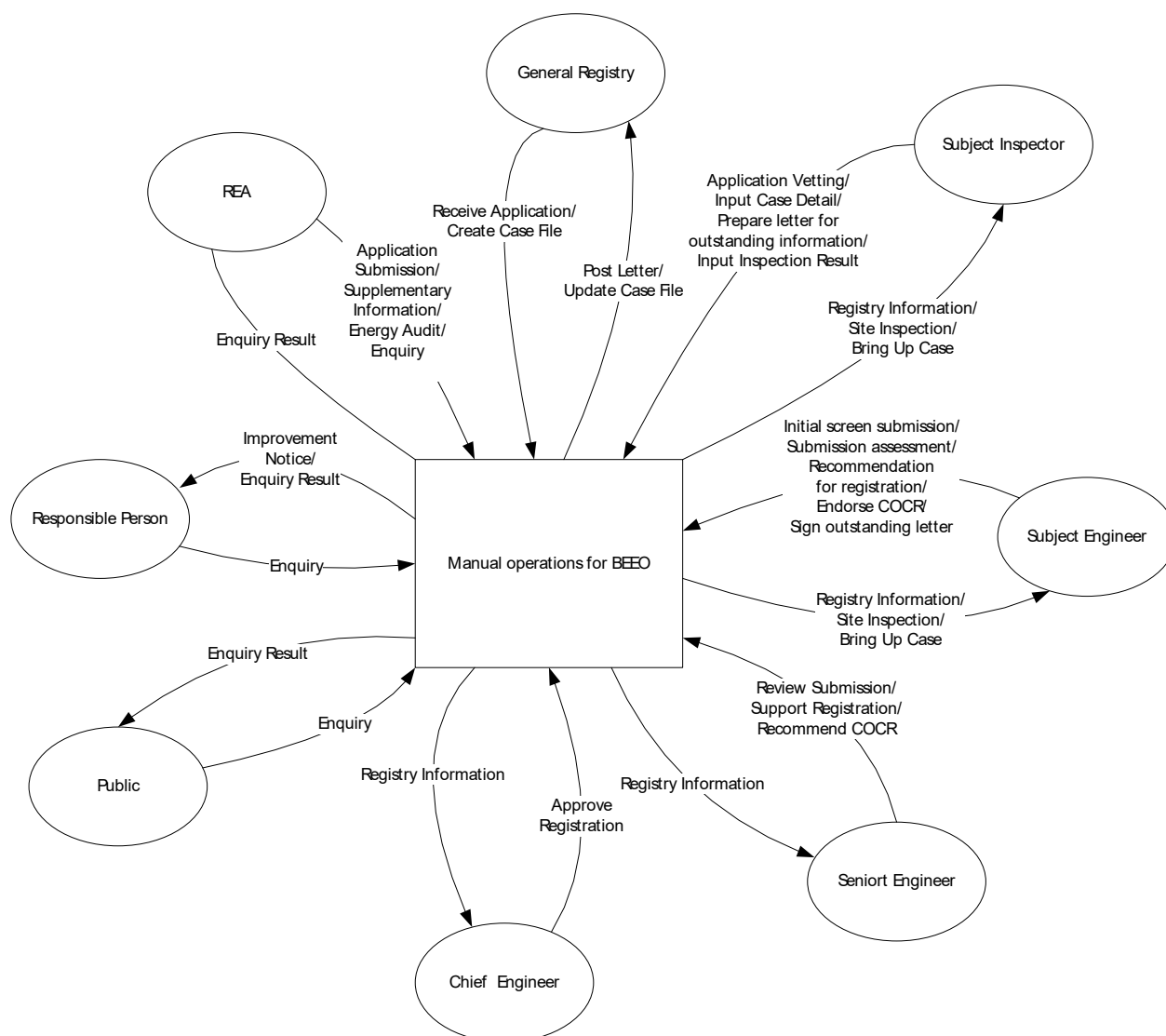
Software Name	Microsoft SQL Server
Version	Microsoft SQL Server 2014 SP3
Description	Database Server



2.3 Current Process Description

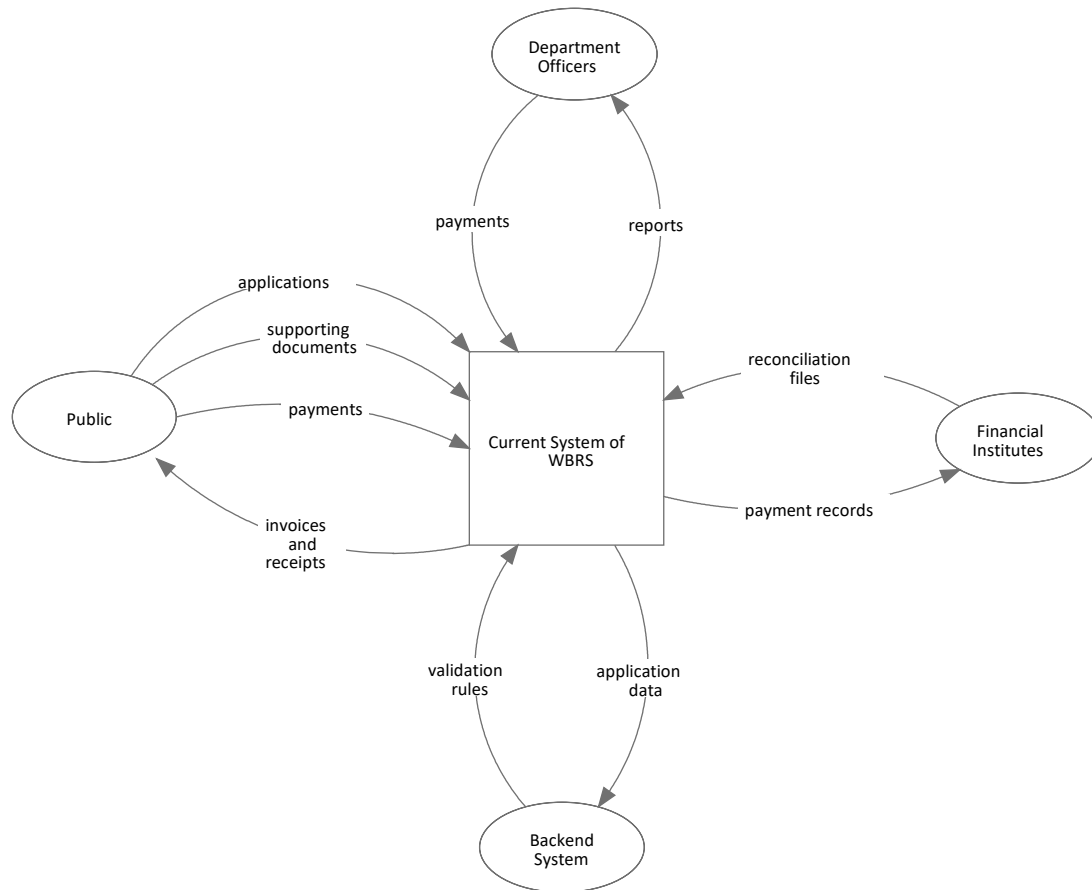
2.3.1 Current Context Diagram

2.3.1.1 BEEO





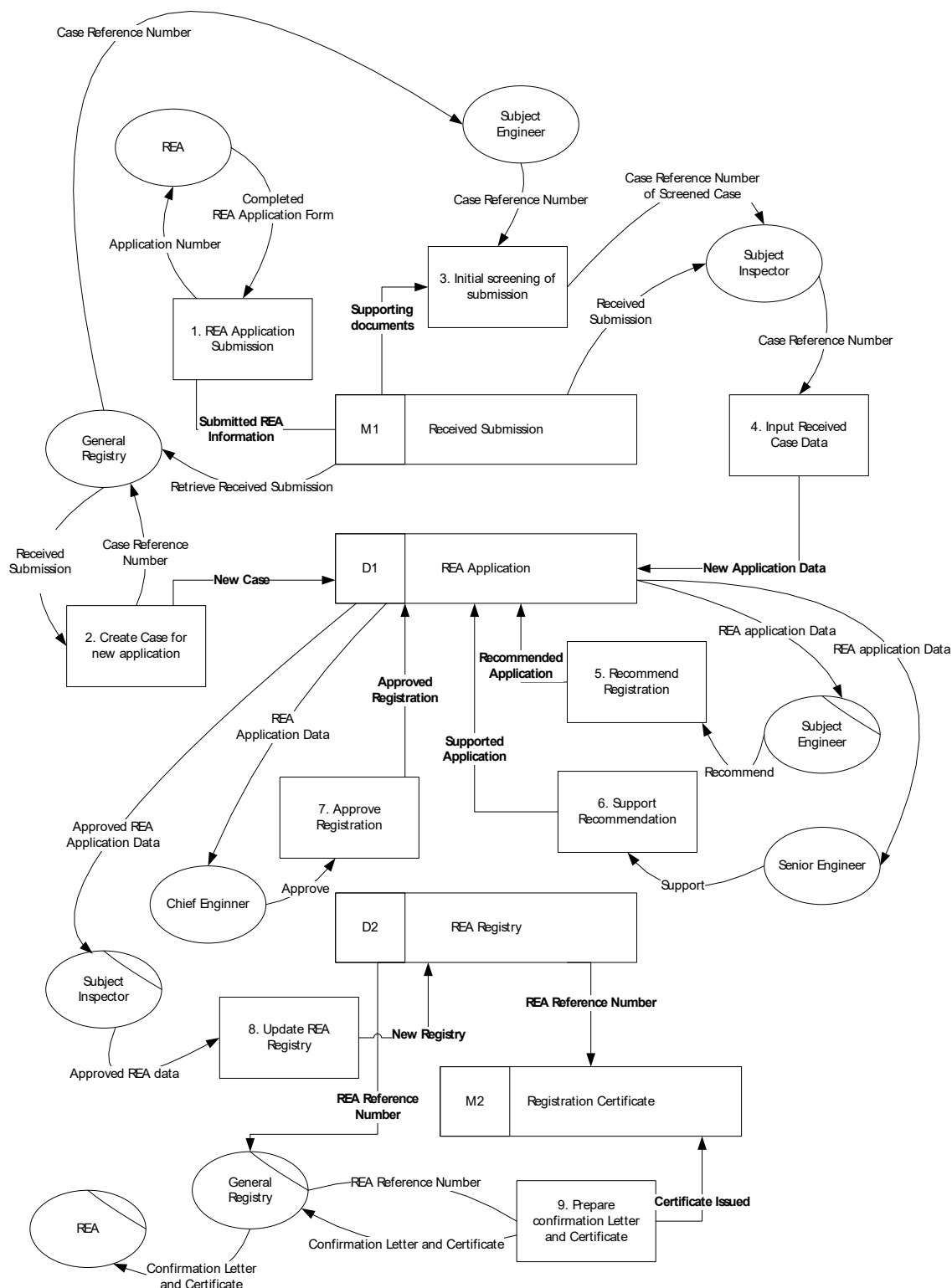
2.3.1.2 WBRs





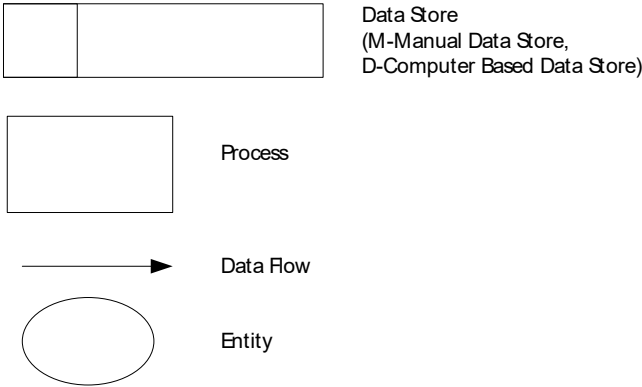
2.3.2 Current Physical Data Flow Diagram

2.3.2.1 Registered Energy Assessor Submission



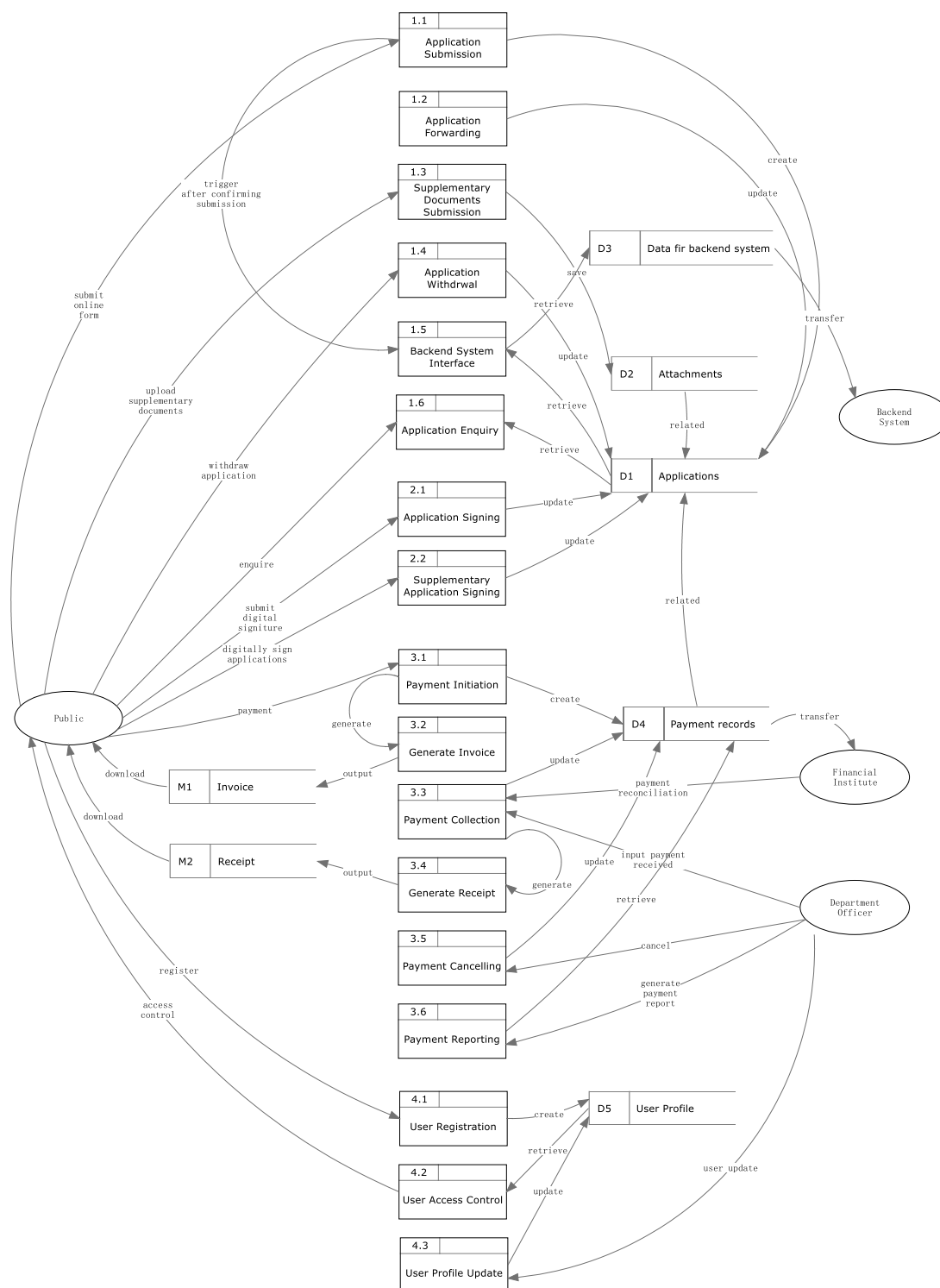


Legend





2.3.2.2 WBRS





2.3.3 Process Description

2.3.3.1 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



2.3.3.2 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



2.4 Current Entity Description

2.4.1 Major Entity Description

2.4.1.1 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

2.4.1.2 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