Test Plan

ENSEK Test System

Created: 2024-10-31

# Introduction

The purpose of the Test Plan is to gather all the information necessary to plan and execute tests of the **ENSEK Test System** as a result of the task described in the [ENSEK QA EXERCISE v6 2 3 - mid-level Ryan Web.pptx](ENSEK%20QA%20EXERCISE%20v6%202%203%20-%20mid-level%20Ryan%20Web.pptx)

# Requirements

Requirements were not provided for the **ENSEK Test System.** The expected behaviour will based on the tester’s subjective understanding of the system.

### Items to clarify

* What is meaning of trading window in the system. When it is open/closed
* Is it a design decision to allow purchases without login? Who is the customer then?

# System Under Test (SUT)

The tests will be executed against the **ENSEK Test System** available at:

<https://ensekautomationcandidatetest.azurewebsites.net/>

# Test Approach

### Test Categories

**Functional Tests** - the functionality of the application will be tested using the systematic test approach. The following aspects will be considered:

* Buying/Selling energy functionality
* User registration functionality
* Login functionality
* Basic security aspects such as access to the system with/without authentication
* Errors reported in the console
* Broken links
* Communication of errors

**Usability Tests** – exploratory tests with focus on readability, aesthetics, interaction with user and responsiveness of the application

Concurrency Tests, Performance Tests, Security Tests, Reliability Tests, Deployment Tests, and other test categories are considered as out of scope of this Test Plan.

### Test Levels

The tests will be performed on the following levels:

* System tests – by evaluating the ENSEK Test System
* Unit tests – are considered as **out of scope** of this Test Plan
* Integration – tests – are considered as **out of scope** of this Test Plan due to lack of access and knowledge of the internal system architecture.
* UAT tests – are considered as **out of scope** of this Test Plan

### Testing Techniques

The System-Level tests will be designed by using the following Test Techniques:

* Equivalence Class Partitioning (ECP) – that evaluates the behaviour by submitting typical valid and invalid argument values.
* Boundary Value Analysis (BVA) – that evaluates the behaviour by submitting boundary values, such as very long names, high numeric values, empty values, invalid types etc.
* State Transition Test Technique - evaluate the behaviour by attempts to make valid and invalid state transitions.

# Test Environment

### Server Configuration:

SaaS solution deployed to AWS

### Client Configuration:

#### Operating Systems:

* MS Windows 10
* MS Windows 11
* MS Windows 11 on touch device
* MacOS Sonoma 14.6
* Linux Ubuntu 24.10
* iPadOS 18 on iPad (touch device)

#### Web Browsers:

* Firefox 131 or later
* Google Chrome 130 or later
* MS Edge 140 or later
* Safari 17.6 or later

# Test Target Items

## TT-1 – Home page

|  |  |
| --- | --- |
| ID | Name |
| TT-11 | Page content and main menu |
| TT-12 | Buy some energy action |
| TT-13 | Sell some energy action |
| TT-14 | About us action |
| TT-15 | Find out more action |

### TT-12 – Buy some energy action

|  |  |
| --- | --- |
| ID | Name |
| TT-121 | Page content and main menu |
| TT-122 | Buy Gas action |
| TT-123 | Buy Nuclear action |
| TT-124 | Buy Electricity action |
| TT-125 | Buy Oil action |
| TT-126 | Reset button |
| TT-127 | Back to Homepage link |

### TT-13 – Sell some energy

Functionality unavailable at the time of the test design

## TT-2 – About page

|  |  |
| --- | --- |
| ID | Name |
| TT-21 | Page content and main menu |
| TT-22 | Find out more about us action |

## TT-3 – Contact page

Functionality unavailable at the time of the test design

## TT-4 – Register page

|  |  |
| --- | --- |
| ID | Name |
| TT-41 | Page content and main menu |
| TT-42 | Register action |

## TT-5 – Login page

|  |  |
| --- | --- |
| ID | Name |
| TT-51 | Page content and main menu |
| TT-52 | Login action |
| TT-53 | Register as a new user link |

# Risks and special considerations

* Application test-specific functionality such as ‘Reset’ button on Buy Energy page must be disabled in UAT and Production environment
* The tests are executed in a shared environment. Simultaneous execution of the tests by more than one user or a user and the automated test suite may affect the test results as the “Quantity of Units Available” reflect actions of all users

# Test Automation

The Test Cases of the highest priority are candidates for test automation

# Estimated Test Effort

* The manual test execution specified in the Test Plan will be performed by one tester in a timeframe of about one day.
* The implementation of the automated tests is estimated for three days

# Success Criteria

* The manual test execution is complete.
* The implementation of the automated tests is complete and integrated with test pipeline.
* All issues found during the test execution are reported and discussed with development team.

# Test Cases

Navigate to the URL provided in the SUT section

The tests should be executed with open browser console

## TT-1 – Home page

#### Test Case TC-11-01 – Main menu navigation

***Parameters:***

The test will be executed for the following pages

PAGE:

* home page (Priority: High)
* About page (Priority: Low)
* Contact page (Priority: Low)
* Register page (Priority: Low)
* Login page (Priority: Low)
* Buy Energy page (Priority: Low)
* Sell Energy page (Priority: Low)

***Description:***

The test verifies main menu navigation from given PAGE

***Step 1:***

*Action:*

* Open the application in a browser and navigate to required PAGE

*Expected result:*

* The browser displays required PAGE
* There is an “ENSEK” image as well as “Home”, “About”, “Contact”, “Register” and “Log in” menu items in the main menu
* There are no errors in the browser console

***Step 2:***

*Action:*

* Press “Home” menu item

*Expected result:*

* The home page is displayed:
  + The title of the page starts with “ENSEK Energy Corp.”
  + The header of the page contains “ENSEK Energy Corp.”
  + The part of the URL representing path is empty (only protocol, domain and optionally port are visible)
* There is an “ENSEK” image as well as “Home”, “About”, “Contact”, “Register” and “Log in” menu items in the main menu
* There are no errors in the browser console

Action:

* Press browser Back button

***Step 3:***

*Action:*

* Press “About” menu item

*Expected result:*

* The “About” page is displayed
  + The header of the page contains: “About ENSEK Energy Corp”
  + The title of the page starts with “About”
  + The page URL contains “/About”
* There is an “ENSEK” image as well as “Home”, “About”, “Contact”, “Register” and “Log in” menu items in the main menu
* There are no errors in the browser console

Action:

* Press browser Back button

***Step 4:***

*Action:*

* Press “Contact” menu item

*Expected result:*

* The “Contact” page is displayed
  + The header of the page contains: “Contact”
  + The tile of the page starts with “Contact”
  + The page URL contains “/Contact”
* There is an “ENSEK” image as well as “Home”, “About”, “Contact”, “Register” and “Log in” menu items in the main menu
* There are no errors in the browser console

Action:

* Press browser Back button

***Step 5:***

*Action:*

* Press “Register” menu item

*Expected result:*

* The Register page is displayed
  + The header of the page contains: “Register”
  + The tile of the page starts with “Register”
  + The page URL contains “/Register”
* There is an “ENSEK” image as well as “Home”, “About”, “Contact”, “Register” and “Log in” menu items in the main menu
* There are no errors in the browser console

Action:

* Press browser Back button

***Step 6:***

*Action:*

* Press “Log in” menu item

*Expected result:*

* The “Log in” page is displayed
  + The header of the page contains: “Log in”
  + The tile of the page starts with “Log in”
  + The page URL contains “/Login”
* There is an “ENSEK” image as well as “Home”, “About”, “Contact”, “Register” and “Log in” menu items in the main menu
* There are no errors in the browser console

Action:

* Press browser Back button

#### Test Case TC-11-02 – Home page content

***Priority: High***

***Description:***

The test verifies the home page content

***Action:***

Open the application in a browser

***Expected results:***

* The home page is displayed:
  + The title of the page starts with “ENSEK Energy Corp.”
  + The header of the page contains “ENSEK Energy Corp.”
  + The part of the URL representing path is empty (only protocol, domain and optionally port are visible)
* The page contains ‘Buy energy” button under “Buy some energy” label
* The page contains ‘Sell energy” button under “Sell some energy” label
* The page contains ‘Learn more” button under “About us” label
* There is a “[For Candidate Testing Purposes Only]” clause on the page
* The descriptions of individual actions are meaningful
* There no spelling mistakes on the page
* There are no errors in the browser console

#### Test Case TC-15-01 – Find out more action

***Priority: Medium***

***Description:***

The test verifies navigation to the Corporate home page

***Step 1:***

*Action:*

* Navigate to home page
* Press “Find out more” button

*Expected result:*

* The title of the page starts with “ENSEK”
* The URL represents the Company home page: https://ensek.com/
* There are no errors in the browser console

Readability of the

|  |  |
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### TT-12 – Buy some energy action

#### Test Case TC-12-01 – Buy some energy action

***Priority: High***

***Description:***

The test verifies navigation to the “Buy Energy” page

***Step 1:***

*Action:*

* Navigate to home page
* Press “Buy energy” button

*Expected result:*

* The “Buy Energy” page is displayed
  + The title of the page starts with “Buy”
  + The header of the page is “Buy Energy”
  + The URL contains “/Buy”
* There are no errors in the browser console

#### Test Case TC-121-01 – Buy energy page content

***Priority: High***

***Description:***

The test verifies content of the “Buy Energy” page

***Step 1:***

*Action:*

* Navigate to home page
* Press “Buy energy” button

*Expected result:*

* The “Buy Energy” page is displayed
  + The title of the page starts with “Buy”
  + The header of the page is “Buy Energy”
  + The URL contains “/Buy”
* There is a list of Energy Types, Prices, Quantity of Units Available, Number of Units Required and “Buy” action for each type of energy
* For each type of energy, if the Quantity of Units Available is greater than zero then the Number of Units Required is editable, otherwise the “Not Available” label is displayed
* There is ‘Reset’ button visible and enabled
* There is a link “Back to home page”
* There are no errors in the browser console

#### Test Case TC-126-01 – Back to Homepage link

***Priority: Low***

***Description:***

The test verifies navigation to home page from the “Buy Energy” page

***Step 1:***

*Action:*

* Navigate to “Buy Energy” page

*Expected result:*

* The “Buy Energy” page is displayed
  + The title of the page starts with “Buy”
  + The header of the page is “Buy Energy”
  + The URL contains “/Buy”
* There are no errors in the browser console

***Step 2:***

*Action:*

* Press “Back to Homepage” link

*Expected result:*

* The home page is displayed
  + The title of the page starts with “ENSEK Energy Corp.”
  + The header of the page contains “ENSEK Energy Corp.”
  + The part of the URL representing path is empty (only protocol, domain and optionally port are visible)
* There are no errors in the browser console

#### Test Case TC-122-01 – Buy Gas using different values

***Priority: High***

***Description:***

The test verifies purchase using different requested values.

It is assumed that “Quantity of Units Available” for Gas is 3000 units after executing “Reset” action.

***Parameters:***

NUMBER:

|  |  |  |
| --- | --- | --- |
| Case | Description | Value |
| 01 | Positive integer value, smaller than the “Quantity of Units Available”) | 1000 |
| 02 | Positive value with decimal places, smaller than the “Quantity of Units Available” | 500.50 |
| 03 | Positive integer value comma separated | 1,000 |
| 04 | Positive integer value, greater than the “Quantity of Units Available” | 5000 |
| 05 | Negative value | -1000 |
| 06 | Value greater than max int32 (2,147,483,647 + 1) | 2147483648 |
| 07 | Negative value of min int32 (-2,147,483,648) | -2147483648 |
| 08 | Alphanumeric value | AbcD10 |
| 09 | Special characters | &&[] |

***Step 1:***

*Action:*

* Navigate to “Buy Energy” page
* Press “Reset” button before first purchase or after Number of Units Required is “Not Available”

*Expected result:*

* “Buy Energy” page is displayed
  + Page title contains “Sale Confirmed”
  + Page header contains “Sale Confirmed”
  + The URL contains “/SaleConfirmed”
* Positive value of Quantity of Units Available for Gas is displayed (3000 units)
* There are no errors in the browser console

***Step 2:***

*Action:*

* Enter the provided NUMBER Value argument to the “Number of Units Required” field for gas.
* Press “Buy” button

*Expected result:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Case | Description | Value | “Sale Confirm” page displayed? | Error |
| 01 | Positive integer value, smaller than the “Quantity of Units Available”) | 1000 | Yes |  |
| 02 | Positive value with decimal places, smaller than the “Quantity of Units Available” | 500.50 | Yes |  |
| 03 | Positive integer value comma separated | 1,000 | Yes |  |
| 04 | Positive integer value, greater than the “Quantity of Units Available” | 5000 | No | Error: Not enough units available |
| 05 | Negative value | -1000 | No | Error: Invalid value |
| 06 | Value greater than max int32 (2,147,483,647 + 1) | 2147483648 | No | Error: Invalid value |
| 07 | Negative value of min int32 (-2,147,483,648) | -2147483648 | No | Error: Invalid value |
| 08 | Alphanumeric value | AbcD10 | No | Error: Invalid value |
| 09 | Special characters | &&{[$ | No | Error: Invalid value |

* “Sale Confirm” page is displayed, or meaningful error message is displayed
* In case the transaction is successful, information is displayed confirming purchase amount and the remaining amount
* There are no other errors in the browser console than the result of invalid input data

***Step 3:***

Run the step only for successful transaction

*Action:*

* Press “Buy more” on the “Sale Confirmed” page

*Expected result:*

* “Buy Energy” page is displayed
* “Quantity of Units Available” for Gas displays the same value as in the “Sale Confirmed” page

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| --- | --- |
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| TT-125 | Buy Oil action |
| TT-126 | Reset button |
| TT-127 | Back to Homepage link |

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Functionality unavailable at the time of the test design

## TT-2 – About page

|  |  |
| --- | --- |
| ID | Action |
| TT-21 | Page content and main menu |
| TT-22 | Find out more about us action |

## TT-3 – Contact page

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## TT-4 – Register page

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| TT-51 | Page content and main menu |
| TT-52 | Login action |
| TT-53 | Register as a new user link |