Test Plan

ENSEK Test System

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# 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 described Task 1 of 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 be based on the tester’s subjective understanding of the system. The Test plan needs to be reviewed and discussed with Product Owner.

### Items to clarify

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

# 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 Energy functionality
* Selling Energy functionality
* User Registration functionality
* Login functionality
* Page links and Action buttons
* Main menu navigation
* Basic security aspects such as access to the system with/without authentication
* Errors reported in the console
* Communication of user/system errors

**Usability Tests** – exploratory tests with focus on readability, consistency, aesthetics of the 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 at the provided address
* Unit tests – are assumed to be developed by developers and therefore 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 in the cloud.

### Client Configuration:

#### Operating Systems:

* MS Windows 10 (Priority: Low)
* MS Windows 11 (Priority: High)
* MS Windows 11 on touch device (Priority: Low)
* MacOS Sonoma 14.6 (Priority: Medium)
* Linux Ubuntu 24.10 (Priority: Low)
* iPadOS 18 on iPad - touch device (Priority: Medium)

#### Web Browsers:

* Firefox 131 or later (Priority: Low)
* Google Chrome 130 or later (Priority: High)
* MS Edge 140 or later (Priority: Medium)
* Safari 17.6 or later (Priority: Medium)

# 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” reflects actions of all users

# Test Automation

The Test Cases of the highest priority are candidates for future 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 Target Items

## Pages

### TT-01 Home page

* TT-01-01 Access Home page with/without login in
* TT-01-02 Main menu navigation on Home page
* TT-01-03 Home page content
* TT-01-04 Buy some energy action on Home page
* TT-01-05 Sell some energy action on Home page
* TT-01-06 About us action on Home page
* TT-01-07 Find out more action on Home page

### TT-02 Buy Energy page

* TT-02-01 Access Buy Energy page with/without login in
* TT-02-02 Main menu navigation on Buy Energy page
* TT-02-03 Buy Energy page content
* TT-02-04 Buy Gas action on Buy Energy page
* TT-02-05 Buy Nuclear action on Buy Energy page
* TT-02-06 Buy Electricity action on Buy Energy page
* TT-02-07 Buy Oil action on Buy Energy page
* TT-02-08 Reset button on Buy Energy page
* TT-02-09 Back to Homepage link on Buy Energy page

### TT-03 Sale Confirmed page

* TT-03-02 Main menu navigation on Sale Confirmed page
* TT-03-03 Sale Confirmed page content
* TT-03-04 Buy more action on Sale Confirmed page

### TT-04 Sale Energy page

* TT-04-01 Access Sale Energy page with/without login in
* TT-04-02 Main menu navigation on Sale Energy page
* TT-04-03 Sale Energy page content
* *Other (Functionality unavailable at the time of the test design)*

### TT-05 About page

* TT-05-01 Access About page with/without login in
* TT-05-02 Main menu navigation on About page
* TT-05-03 About Page content
* TT-05-04 Find out more about us action on About page

### TT-06 Contact page

* TT-06-01 Access Contact page with/without login in
* TT-06-02 Main menu navigation on Contact page
* TT-06-03 Contact Page content
* *Other (Functionality unavailable at the time of the test design)*

### TT-07 Register page

* TT-07-01 Access Register page with/without login in
* TT-07-02 Main menu navigation on Register page
* TT-07-03 Register page content
* TT-07-04 Register action on Register page

### TT-08 Login page

* TT-08-01 Access Login page with/without login in
* TT-08-02 Main menu navigation on Login page
* TT-08-03 Login Page content
* TT-08-04 Login action on Login page
* TT-08-05 Register as a new user link on Login page

## Scenarios

### TT-10 Register a user

* TT-10-01 Register a user with a valid email address and a valid password
* TT-10-02 Register a user with an invalid email address or password
  + Register a user with all empty fields
  + Register a user with valid email address and valid password, but empty confirmed password
  + Register a user with valid email address and valid password, but incorrect confirmed password
  + Register a user with an email address without ‘@’ character
  + Register a user with an email address with special characters
  + Register a user with an email address with spaces
  + Register a user with an email address with foreign characters
  + Register a user with a too short password
  + Register a user with a very long password (~1000 chars)
  + Register a user with a password not containing Uppercase character
  + Register a user with a password not containing Lowercase character
  + Register a user with a password not containing Digit
  + Register a user with a password not containing Special character

### TT-11 User log in

* TT-11-01 Log in with correct email address and correct password
* TT-11-02 Log in with incorrect email address or password
* Log in with correct email address and incorrect password
* Log in with correct email address and empty password
* Log in with correct email address a very long (incorrect) password
* Log in with empty email address and empty password
* Log in with valid, but not registered email address
* Log in using email address without ‘@’ character
* Log in using email address with special characters
* Log in using email address with spaces
* Log in using email address with foreign characters

### TT-12 Buy energy

TT-12-01 Buy energy with valid required number of units that is:

* Positive integer number, smaller than the “Quantity of Units Available”
* Positive integer number, equal to the “Quantity of Units Available”
* Positive valid value with decimal separator, smaller than the “Quantity of Units Available”
* Positive integer value with comma thousands separator, smaller than the “Quantity of Units Available”

TT-12-02 Buy energy with invalid required number of units that is:

* Positive integer value, greater than the “Quantity of Units Available”
* Positive integer value, when the “Quantity of Units Available” is zero (Not available)
* Negative value
* Value greater than max int32 (2,147,483,647 + 1)
* Negative value equal to min int32 (-2,147,483,648)
* Alphanumeric value
* Value with Special characters

# Test Cases

Open browser and navigate to the application under test

The tests should be executed with open browser console

## TT-01 Home page

### TT-01-01 Access Home page with/without login in

#### Test Case TC-01-01-01 Access Home page without login in

***Priority: High***

***Description:***

The test verifies the home page is available without login in

***Action:***

Open the application in a browser without login in

***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)

#### Test Case TC-01-01-02 Access Home page with login in

*Functionality unavailable at the time of the test design*

### TT-01-03 Home Page content

#### Test Case TC-01-03-01 – Home page content

***Priority: Medium***

***Description:***

The test verifies the home page content

***Action:***

Open Home page

***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 main menu of the page contains: “ENSEK” image as well as “Home”, “About”, “Contact”, “Register, “Log in” menu items
* 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 are no spelling mistakes on the page
* There are no overlapping labels or fields
* The page layout, style, fonts and colours are correct
* The page loads within max a couple of seconds
* There are no errors in the browser console

### TT-01-05 Buy some energy action

#### Test Case TC-01-05-01 – Buy some energy button

***Priority: High***

***Description:***

The test verifies “Buy energy” button

***Step 1:***

*Action:*

* Open Home page
* Click “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

### TT-01-06 Sell some energy action

#### Test Case TC-01-05-01 – Sell energy button action

***Priority: High***

***Description:***

The test verifies “Sell Energy” button

***Step 1:***

*Action:*

* Open Home page
* Click “Sell energy” button

*Expected result:*

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

### TT-01-07 About us action

#### Test Case TC-01-07-01 – Learn more button

***Priority: High***

***Description:***

The test verifies the “Learn more” button action

***Step 1:***

*Action:*

* Open Home page
* Click “Learn more” button

*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

### TT-01-08 Find out more action

#### Test Case TC-01-08-01 – Find out more action

***Priority: Medium***

***Description:***

The test verifies “Find out more” button action

***Step 1:***

*Action:*

* Open Home page
* Press “Find out more” button

*Expected result:*

* Company home page is displayed:
  + 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

## TT-02 Buy Energy page

### TT-02-01 Access the page with/without login in

#### Test Case TC-02-01-01 Access “Buy Energy” page without login in

***Priority: High***

***Description:***

The test verifies the “Buy Energy” page is available without login in

*\*The expected behaviour needs to be verified with Product Owner*

***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”

#### Test Case TC-02-01-02 Access “Buy Energy” page with login in

*Functionality unavailable at the time of the test design*

### TT-02-03 Buy Energy page content

#### Test Case TC-02-03-01 – “Buy Energy” page content

***Priority: High***

***Description:***

The test verifies content of the “Buy Energy” page

***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”
* The main menu of the page contains: “ENSEK” image as well as “Home”, “About”, “Contact”, “Register, “Log in” menu items
* 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 is a “[For Candidate Testing Purposes Only]” clause on the page
* The description of the page is meaningful
* There are no spelling mistakes on the page
* There are no overlapping labels or fields
* The page layout, style, fonts and colours are correct
* The page loads within max a couple of seconds
* There are no errors in the browser console

### TT-02-09 Back to Homepage link

#### Test Case TC-02-09-01 – Back to Homepage link

***Priority: Low***

***Description:***

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

***Step 1:***

*Action:*

* Open Home page
* Click “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

***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

## TT-03 Sale Confirmed page

### TT-03-03 Sale Confirmed page content

#### Test Case TC-03-03-01 – “Sale Confirmed” page content

***Priority: Medium***

***Description:***

The test verifies content of the “Sale Confirmed” page

***Step 1***

*Action:*

* Navigate to “Buy energy” page from Home 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”

***Step 2***

*Action:*

* In the list of available energies find an energy that has the “Quanity of Units Available” greater than zero
* For that energy enter in the “Number of Units Required” value: “1”, then press “Buy” button

*Expected result:*

* The “Sale confirmed” page is displayed
  + The title of the page starts with “Sale Confirmed”
  + The header of the page contains “Sale Confirmed”
  + The URL contains “/SaleConfirmed”
* The main menu of the page contains: “ENSEK” image as well as “Home”, “About”, “Contact”, “Register, “Log in” menu items
* The header is: “Sale Confirmed!”.
* There is a confirmation of the purchase displayed on the page that:
  + Starts with phrase “Thank you for your purchase”
  + Includes information of the number of units and the energy type purchased
  + Includes information about the number of units left in stores
  + Includes sentence: “We have popped it in the post, and it will be with you shortly.”
* The page contains “Buy more” button
* There is a “[For Candidate Testing Purposes Only]” clause on the page
* There are no spelling mistakes or punctuation errors on the page
* There are no overlapping labels or fields
* The page layout, style, fonts and colours are correct
* The page loads within max a couple of seconds
* There are no errors in the browser console

### TT-03-04 Buy more action on Sale Confirmed page

#### Test Case TC-03-04-01 – Buy more action on Sale Confirmed page

***Priority: Medium***

***Description:***

The test verifies “Buy more” button action on the Sale Confirmed page

***Step 1***

*Action:*

* Navigate to “Buy energy” page from Home 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”

***Step 2***

*Action:*

* In the list of available energies find an energy that has the “Quantity of Units Available” greater than zero
* For that energy enter in the “Number of Units Required” value: “1”, then press “Buy” button

*Expected result:*

* The “Sale confirmed” page is displayed
  + The title of the page starts with “Sale Confirmed”
  + The header of the page contains “Sale Confirmed”
  + The URL contains “/SaleConfirmed”

***Step 3***

*Action:*

* Click “Buy more” button on the “Sale confirmed” 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”

## TT-05 About page

### TT-05-01 Access about page with/without login in

#### Test Case TC-05-01-01 Access About page without login in

***Priority: High***

***Description:***

The test verifies the About page is available without login in

***Action:***

* Navigate to About page (from main menu or Home page)

***Expected result:***

* The About page is displayed
  + The title of the page starts with “About”
  + The header of the page contains “About”
  + The URL contains “/About”

#### Test Case TC-05-01-02 Access About page with login in

*Functionality unavailable at the time of the test design*

### TT-05-03 About Page content

#### Test Case TT-05-03-01 About Page content

***Priority: High***

***Description:***

The test verifies the About page is available without login in

***Action:***

* Navigate to About page (from main menu or Home page)

***Expected result:***

* The About page is displayed
  + The title of the page starts with “About”
  + The header of the page contains “About”
  + The URL contains “/About”
* The main menu of the page contains: “ENSEK” image as well as “Home”, “About”, “Contact”, “Register, “Log in” menu items
* The header is: “About ENSEK Energy Corp..”
* The sub-header is: “Learn a little more about us”
* The page contains ‘Find out more about us” button
* There is a “[For Candidate Testing Purposes Only]” clause on the page
* The description is meaningful
* There are no spelling mistakes on the page
* There are no overlapping labels or fields
* The page layout, style, fonts and colors are correct
* The page loads within max a couple of seconds
* There are no errors in the browser console

### TT-05-04 About page - Find out more about us action

#### Test Case TC-05-04-01 – Find out more action on About page

***Priority: Medium***

***Description:***

The test verifies “Find out more about us” button action

***Action:***

* Open Home page
* Press “Find out more” button

***Expected result:***

* Company home page is displayed:
  + 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

## TT-06 Contact page

### TT-06-01 Access Contact page with/without login in

#### Test Case TC-06-01-01 Access Contact page without login in

***Priority: High***

***Description:***

The test verifies the Contact page is available without login in

***Action:***

* Navigate to Contact page from main menu

***Expected result:***

* The Contact page is displayed
  + The title of the page starts with “Contact”
  + The header of the page contains “Contact”
  + The URL contains “/Contact”

#### Test Case TC-06-01-02 Access About page with login in

*Functionality unavailable at the time of the test design*

### TT-06-03 Contact page content

#### Test Case TT-06-03-01 Contact Page content

*Functionality unavailable at the time of the test design*

## TT-07 Register page

### TT-07-01 Access to page with/without login in

#### Test Case TC-07-01-01 Access Register page without login in

***Priority: High***

***Description:***

The test verifies the Register page is available without login in

***Action:***

* Navigate to Register page from main menu

***Expected result:***

* The Register page is displayed
  + The title of the page starts with “Register”
  + The header of the page contains “Register”
  + The URL contains “/Register”

#### Test Case TC-07-01-02 Access About page with login in

*Functionality unavailable at the time of the test design*

### TT-07-03 Register page content

#### Test Case TT-07-03-01 Register Page content

***Priority: High***

***Description:***

The test verifies the Register page content

***Action:***

* Navigate to Register page from main menu

***Expected result:***

* The Register page is displayed
  + The title of the page starts with “Register”
  + The header of the page contains “Register”
  + The URL contains “/Register”
* The main menu of the page contains: “ENSEK” image as well as “Home”, “About”, “Contact”, “Register, “Log in” menu items
* The header is: “Register.
* The sub-header is: “Create a new account.”
* The page contains Email field
* The page contains Password field
* The page contains Confirm password field
* The page contains Register button
* There is a “[For Candidate Testing Purposes Only]” clause on the page
* There are no spelling mistakes on the page
* There are no overlapping labels or fields
* The page layout, style, fonts and colors are correct
* The page loads within max a couple of seconds
* There are no errors in the browser console

## TT-08 Login page

### TT-08-01 Access to page with/without login in

#### Test Case TC-08-01-01 Access Login page before login in

***Priority: High***

***Description:***

The test verifies the Login page is available without login in

***Action:***

* Navigate to Login page from main menu

***Expected result:***

* The Login page is displayed
  + The title of the page starts with “Log in”
  + The header of the page contains “Log in”
  + The URL contains “/Login”

#### Test Case TC-08-01-02 Access About page after login in

*Functionality unavailable at the time of the test design*

### TT-08-03 Login Page content

#### Test Case TT-08-03-01 Login Page content

***Priority: High***

***Description:***

The test verifies the Login page content

***Action:***

* Navigate to Login page from main menu

***Expected result:***

* The Login page is displayed
  + The title of the page starts with “Log in”
  + The header of the page contains “Log in”
  + The URL contains “/Login”
* The main menu of the page contains: “ENSEK” image as well as “Home”, “About”, “Contact”, “Register, “Log in” menu items
* The header is: “Log in.”
* The page contains “Use a local account to log in.” section
* The page contains “Use another service to log in” section
* The “Use a local account to log in.” section contains Email field
* The “Use a local account to log in.” section contains Password field
* The “Use a local account to log in.” section contains “Remember me” checkbox
* The “Use a local account to log in.” section contains Login button
* The “Use a local account to log in.” section contains “Register as a new user” link
* The “Use another service to log in” section contains meaningful description
* There is a “[For Candidate Testing Purposes Only]” clause on the page
* There are no spelling mistakes on the page
* There are no overlapping labels or fields
* The page layout, style, fonts and colours are correct
* The page loads within max a couple of seconds
* There are no errors in the browser console

### TT-08-05 Register as a new user link on Login page

#### Test Case TC-08-05-01 Register as a new user link on Login page

***Priority: Low***

***Description:***

The test verifies the “Register as a new user” link on Login page

***Step 1***

*Action:*

* Navigate to Login page from main menu

*Expected result:*

* The Login page is displayed
  + The title of the page starts with “Log in”
  + The header of the page contains “Log in”
  + The URL contains “/Login”

***Step 2***

*Action:*

* Click “Register as a new user” link on Login page

*Expected result:*

* The Register page is displayed
  + The title of the page starts with “Register”
  + The header of the page contains “Register”
  + The URL contains “/Register”

## Main menu navigation

### TT-01-02 Main menu navigation on Home page

### TT-02-02 Main menu navigation on Buy Energy page

### TT-03-02 Main menu navigation on Sale Confirmed page

### TT-04-02 Main menu navigation on Sale Energy page

### TT-05-02 Main menu navigation on About page

### TT-06-02 Main menu navigation on Contact page

### TT-07-02 Main menu navigation on Register page

### TT-08-02 Main menu navigation on Login page

***Parameters:***

The test will be executed for the following pages

PAGE:

#### Test Case TC-01-02-01 Home page (Priority: High)

#### Test Case TC-02-02-01 Buy Energy page (Priority: Low)

#### Test Case TC-03-02-01 Sale Confirmed page (Priority: Low)

#### Test Case TC-04-02-01 Sale Energy page (Priority: Low)

#### Test Case TC-05-02-01 About page (Priority: Low)

#### Test Case TC-06-02-01 Contact page (Priority: Low)

#### Test Case TC-07-02-01 Register page (Priority: Low)

#### Test Case TC-08-02-01 Login 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

## Scenarios

### TT-10 Register a user

### TT-10-01 Register a user with valid email address and valid password

#### Test Case TC-10-01-01 Register a user with valid email address and valid password

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-01-02 Register a user with valid Uppercase email address and valid password

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | JACK.SMITH@GMAIL.COM |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-01-03 Register a user with valid email address and valid password, but longer than required minimum number of characters

***Priority: Low***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | james.smith@gmail.com |
| Password | AaBbCc123456!$ |
| Confirm password | AaBbCc123456!$ |

***Description:***

The test verifies successful user registration

***Step 1:***

*Action:*

* Navigate to Register page from main menu

*Expected result:*

* The Register page is displayed
  + The title of the page starts with “Register”
  + The header of the page contains “Register”
  + The URL contains “/Register”

***Step 2:***

*Action:*

* Enter the test data into the corresponding fields
* Click “Register” button

*Expected result:*

* The registration is successful
* There are no console errors

*Functionality unavailable at the time of the test design*

### TT-10-02 Register a user with an invalid email address or password

#### Test Case TC-10-02-01 Register a user with all empty fields

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email |  |
| Password |  |
| Confirm password |  |

#### Test Case TC-10-02-02 Register a user with valid email address and valid password, but empty confirmed password

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown@gmail.com |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-02-03 Register a user with valid email address and valid password, but incorrect confirmed password

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | Aa123! |
| Confirm password | Aa123!xyz |

#### Test Case TC-10-02-04 Register a user with an email address without ‘@’ character

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown.gmail.com |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-02-05 Register a user with an email address with special characters

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown!@gmail.com |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-02-06 Register a user with an email address with spaces

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie brown@gmail.com |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-02-07 Register a user with an email address with foreign characters

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | mariè.brown@gmail.com |
| Password | Aa123! |
| Confirm password | Aa123! |

#### Test Case TC-10-02-08 Register a user with a too short password

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown@gmail.com |
| Password | Aa1! |
| Confirm password | Aa1! |

#### Test Case TC-10-02-09 Register a user with a very long password

***Priority: Low***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | “Aa123!” + 1000 alphanumeric characters |
| Confirm password | “Aa123!” + 1000 the same alphanumeric characters |

#### Test Case TC-10-02-10 Register a user with a password not containing Uppercase character

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown@gmail.com |
| Password | aa123! |
| Confirm password | aa123! |

#### Test Case TC-10-02-11 Register a user with a password not containing Lowercase character

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown@gmail.com |
| Password | AA123! |
| Confirm password | AA123! |

#### Test Case TC-10-02-12 Register a user with a password not containing Digit

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | Aabcd! |
| Confirm password | Aabcd! |

#### Test Case TC-10-02-13 Register a user with a password not containing Special character

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | Aa1234 |
| Confirm password | Aa1234 |

***Description:***

The test verifies unsuccessful user registration

***Step 1:***

*Action:*

* Navigate to Register page from main menu

*Expected result:*

* The Register page is displayed
  + The title of the page starts with “Register”
  + The header of the page contains “Register”
  + The URL contains “/Register”

***Step 2:***

*Action:*

* Enter the test data into the corresponding fields
* Click “Register” button

*Expected result:*

* The registration is unsuccessful
* The error message is displayed, and it is properly formatted
* The error message clearly describes the problem
* The page clearly informs about the password requirements

### TT-11 User log in

### TT-11-01 Log in with correct email address and correct password

#### Test Case TC-11-01 Log in with correct email address and correct password

***Description:***

The test verifies successful user login.

*Functionality unavailable at the time of the test design*

***Prerequisites***

The test requires an already registered test user with known email address and password.

It is assumed that [john.smith@gmail.com](mailto:john.smith@gmail.com) user was successfully registered in TC-10-01-01

***Test Data***

|  |  |
| --- | --- |
| Email | john.smith@gmail.com |
| Password | Aa123! |

***Step 1:***

*Action:*

* Navigate to Login page from main menu

*Expected result:*

* The Login page is displayed
  + The title of the page starts with “Log in”
  + The header of the page contains “Log in”
  + The URL contains “/Login”

***Step 2:***

*Action:*

* Enter the test user email address and password
* Click “Log in” button

*Expected result:*

* The login is successful
* There are no console errors

### TT-11-02 Log in with incorrect email address or password

***Prerequisites***

The test requires an already registered test user with known email address and password.

It is assumed that [john.smith@gmail.com](mailto:john.smith@gmail.com) user was successfully registered in TC-10-01-01

#### Test Case TC-11-02-01 Log in with correct email address of an already registered user but incorrect password

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | Aa123456! |

#### Test Case TC-11-02-02 Log in with correct email address of an already registered user and empty password

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password |  |

#### Test Case TC-11-02-03 Log in with correct email address a very long (incorrect) password

***Priority: High***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | john.smith@gmail.com |
| Password | “Aa123!” + 1000 alphanumeric characters |

#### Test Case TC-02-04 Log in with empty email address and empty password

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email |  |
| Password |  |

#### Test Case TC-11-02-05 Log in with valid, but not registered email address

***Priority: Medium***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | adam.guest@fake.com |
| Password | Aa123456! |

#### Test Case TC-11-02-06 Log in using email address without ‘@’ character

***Priority: Low***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown.gmail.com |
| Password | Aa123456! |

#### Test Case TC-11-02-07 Log in using email address with special characters

***Priority: Low***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie.brown!@gmail.com |
| Password | Aa123456! |

#### Test Case TC-11-02-08 Log in using email address with spaces

***Priority: Low***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | marie brown@gmail.com |
| Password | Aa123456! |

#### Test Case TC-11-02-09 Log in using email address with foreign characters

***Priority: Low***

***Test Data:***

|  |  |
| --- | --- |
| Field | Value |
| Email | mariè.brown@gmail.com |
| Password | Aa123456! |

***Description:***

The test verifies unsuccessful user login.

***Step 1:***

*Action:*

* Navigate to Login page from main menu

*Expected result:*

* The Login page is displayed
  + The title of the page starts with “Log in”
  + The header of the page contains “Log in”
  + The URL contains “/Login”

***Step 2:***

*Action:*

* Enter the test user email address and password using the Test Data provided
* Click “Log in” button

*Expected result:*

* The login is unsuccessful
* The error message is displayed, and it is properly formatted
* The error message clearly describes the problem

### TT-12 Buy energy

### TT-12-01 Buy energy with valid required number of units

***Prerequisites:***

Before executing the tests, reset the Quantity of Units Available

It is assumed that the reset action will restore the following values:

|  |  |
| --- | --- |
| Energy Type | Quantity of Units Available |
| Gas | 3000 |
| Nuclear | 0 |
| Electricity | 4322 |
| Oil | 20 |

#### Test Case TC-12-01-01 Buy energy with “Number of Units Required” that is a positive integer number, smaller than the “Quantity of Units Available”

***Priority: High***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Oil | Number of Units Requested | 100 |

#### Test Case TC-12-01-02 Buy energy with “Number of Units Required” that is a positive integer number, equal to “Quantity of Units Available”

***Priority: High***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Gas | Number of Units Requested | 3000 |

#### Test Case TC-12-01-02 Buy energy with “Number of Units Required” that is a positive valid value with decimal separator, smaller than the “Quantity of Units Available”

***Priority: High***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Electricity | Number of Units Requested | 200.50 |

#### Test Case TC-12-01-03 Buy energy with “Number of Units Required” that is a positive integer value with comma thousands separator and decimal separator, smaller than the “Quantity of Units Available”

***Priority: High***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Gas | Number of Units Requested | 1,000.50 |

***Description:***

The test verifies purchase using different types of energy with different format of requested values.

*\*The expected behaviour needs to be verified with Product Owner*

***Step 1:***

*Action:*

* Navigate to “Buy Energy” page, if it’s not already there)
* Press “Reset” button if required

*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”
* For unavailable energies (“Quantity of Units Available” = 0) the “Buy” button is not displayed and the “Number of Unit Required” is “Not Available”
* There are no errors in the browser console

***Step 2:***

*Action:*

* Enter the provided Value from the Test Data as an argument to the “Number of Units Required” field for the given type of energy.
* Take a note of Quantity of Units Available for the given type of energy
* Press “Buy” button

*Expected result:*

* “Sale Confirm” page is displayed
* The information on the “Sale Confirm” page displays correct values of the type of energy purchased and the number of units requested
* The information on the “Sale Confirm” page displays a value of the remaining number of units of the purchased energy that is equal to the difference between the original Quantity of Units Available and the Number of Units Required
* There are no errors in the browser console

***Step 3:***

Run the step only for successful transaction

*Action:*

* Take note of the new number of units of the given energy available
* Press “Buy more” on the “Sale Confirmed” page

*Expected result:*

* “Buy Energy” page is displayed
* “Quantity of Units Available” for the given energy type has the same value as in the “Sale Confirmed” page
* If the “Quantity of Units Available” has been reduced to zero, the “Buy” button is not displayed and the “Number of Unit Required” is “Not Available”

### TT-12-02 Buy energy with invalid required number of units

#### Test Case TC-12-02-01 Buy energy with “Number of Units Required” that is a positive integer value, greater than the “Quantity of Units Available”

***Priority: High***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Oil | Number of Units Requested | 100 |

#### Test Case TC-12-02-03 Buy energy with “Number of Units Required” that is a positive integer value, when the “Quantity of Units Available” is zero (Not available)

***Priority: Medium***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Nuclear | Number of Units Requested | 100 |

#### Test Case TC-12-02-04 Buy energy with “Number of Units Required” that is a negative value

***Priority: Low***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Gas | Number of Units Requested | -100 |

#### Test Case TC-12-02-05 Buy energy with “Number of Units Required” that is a value greater than max int32 (=2,147,483,647 + 1)

***Priority: Low***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Oil | Number of Units Requested | 2147483648 |

#### Test Case TC-12-02-06 Buy energy with “Number of Units Required” that is a negative value equal to min int32

***Priority: Low***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Electricity | Number of Units Requested | -2147483648 |

#### Test Case TC-12-02-07 Buy energy with “Number of Units Required” that is an Alphanumeric value

***Priority: Low***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Gas | Number of Units Requested | Abcd1234 |

#### Test Case TC-12-02-08 Buy energy with “Number of Units Required” that is a Value with Special characters

***Priority: Low***

***Test Data:***

|  |  |  |
| --- | --- | --- |
| Energy Type | Field | Value |
| Oil | Number of Units Requested | $#?! |

***Step 1:***

*Action:*

* Navigate to “Buy Energy” page, if it’s not already there
* Press “Reset” button if required

*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:*

* Enter the provided Value from the Test Data as an argument to the “Number of Units Required” field for the given type of energy.
* Take a note of the “Quantity of Units Available” for the given type of energy
* Press “Buy” button

*Expected result:*

* The purchase is unsuccessful
* The error message is displayed, and it is formatted for a user
* The error message clearly describes the reason of the failure for a user and acceptable values
* The “Quantity of Units Available” on the “Buy Energy” page has not changed.