



Document	Test Plan
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# 1. Background

ENSEK is a UK-based energy technology company that provides cloud-native, end-to-end SaaS platforms for energy suppliers across residential (B2C), business (B2B), and industrial/commercial (I&C) segments. With a strong presence in the UK, Belgium, and Australia, ENSEK enables energy providers to efficiently manage customer operations, billing, metering, and market settlement processes. Their platform leverages AWS infrastructure to deliver scalable, API-driven energy retail solutions.

As part of ENSEK's continued investment in user-facing capabilities, the ENSEK Energy Portal is designed as a public-facing application for end-users to interact with core services such as purchasing and managing energy supply. It simulates core functionality such as ordering fuel types (e.g., Gas, Electricity, Oil), real-time inventory handling, discount logic, and UI-driven transactions — all intended to reflect the usability and system integrity of ENSEK's digital stack.

This Test Plan outlines the validation approach taken to evaluate the functional behaviour and user experience of the ENSEK Energy Portal in a sandbox environment.

# 2. Purpose

The purpose of this document is to outline the approach, scope, and focus areas for validating the ENSEK Energy Portal from a functional and user interface (UI) perspective. This plan is based on a short-term exploratory test cycle performed as part of a candidate technical assessment, and it aims to demonstrate both practical test design thinking and structured analysis of application quality.

The ENSEK Energy Portal presents a simplified transactional interface where users can purchase different energy types under varying stock and pricing conditions. As such, the test effort is centred on verifying key workflows (such as buying energy, handling inventory states, and displaying promotional content), while also identifying UI inconsistencies and potential risks.

This document outlines what will be tested, what assumptions are being made, and what areas are considered out of scope for this cycle. It provides the rationale behind the selected test conditions and describes how structured QA practices will be applied to evaluate the ENSEK Energy Portal in a sandboxed environment. The goal is to ensure that critical functionality, usability, and data integrity are appropriately validated within the constraints of the available interface.

# 3. Scope

The following areas and features of the ENSEK Energy Portal are within the scope of this test effort:

- **Buy Energy functionality:**
  - Purchasing available energy types (e.g., Gas, Electricity, Oil)
  - Handling valid and invalid quantity inputs
  - Inventory deduction logic and boundary conditions
  - Disabled or unavailable fuel types (e.g., Nuclear)
  - Reset mechanism for restoring initial state
- **Sell Energy functionality** (subject to availability):
  - Attempting to access and interact with the Sell Energy interface
  - Validation of field behaviour and transaction boundaries (if enabled)
  - Identification of error messages or maintenance flags if unavailable
- **UI and UX validation:**
  - Layout consistency and element alignment
  - Promotional content accuracy (e.g., discount values)
  - Button states, labels, and navigational flow

The following items are excluded from this test cycle either due to environment limitations or by design:

- **Authentication flows:**
  - No login, registration, or session management is tested
- **Backend data validation:**
  - No access to server-side logs, database state, or internal API telemetry
- **API Testing:**
  - REST API endpoints are evaluated separately
- **Performance and load testing:**
  - No stress, concurrency, or performance benchmarks will be executed
- **Mobile/responsive layout testing:**
  - All tests performed using desktop web browser

## 4. Test Environment

All testing will be performed against a mock web instance of the ENSEK Energy Portal in a non-production, sandbox configuration.

**Test URL** - <https://ensekautomationcandidatestest.azurewebsites.net>

### Test Platform:

- Device: Desktop / Laptop
- Browser: Google Chrome 124 (Stable Release)
- Operating System: macOS Sonoma 14.4.1

## 5. Risks & Assumptions

- **Limited backend visibility**
  - All testing is based on observable UI behaviour; no access to logs, APIs, or database state will be available.
- **Sell Energy feature may be incomplete**
  - This feature appears in the UI but may not be functional or accessible, potentially limiting coverage.

## 6. Test Design Approach

Exploratory, risk-based testing focused on high-impact areas and likely user flows. Priority will be given to validation scenarios, defect-prone interactions, and visible inconsistencies.

## 7. Test Conditions

### 7.1 New User Registration

The goal is to verify whether the user registration process accepts valid inputs, rejects invalid combinations, and presents appropriate feedback for error conditions. Both functional validation and basic UI behaviour will be covered.

#### Happy Path Scenarios:

**TC-R01:** User can register successfully with a unique, well-formed email address and matching passwords.

**TC-R02:** Password and confirm password fields must match for registration to proceed.

**TC-R03:** On successful registration, the user is redirected or receives confirmation feedback.

#### Unhappy Path Scenarios:

**TC-R04:** Registration should fail if the email field is empty or not in a valid format.

**TC-R05:** Registration should fail if the password and confirm password fields do not match.

**TC-R06:** Registration should fail if the password is too short or fails to meet complexity requirements.

**TC-R07:** Error messages should be clearly displayed and positioned near the relevant input field.

**TC-R08:** The Register button should be disabled or non-functional if required fields are blank.

**TC-R09:** Registration should fail if the entered email address already exists in the system.

## 7.2 Login Page

The goal is to confirm that valid credentials allow access, invalid attempts are rejected securely, and appropriate feedback is provided to guide the user.

#### Happy Path Scenarios:

**TC-L01:** User can successfully log in using a registered email and correct password.

**TC-L02:** Upon successful login, the user is redirected to the appropriate landing page or receives visual confirmation of authentication.

**TC-L03:** The “Remember me” option is displayed and selectable.

#### Unhappy Path Scenarios:

**TC-L04:** Login attempt fails when an incorrect email is entered.

**TC-L05:** Login attempt fails when a correct email is used with an incorrect password.

**TC-L06:** Login attempt fails when both fields are left empty.

**TC-L07:** The Log in button remains inactive or returns an error if mandatory fields are missing.

**TC-L08:** An appropriate error message is displayed when login fails.

**TC-L09:** Login should not succeed if the account has not been registered or does not exist in the system.

**TC-L10:** No system or technical error message should be exposed to the end user under any invalid condition.

## 7.3 Buy Energy Page

The goal is to validate the end-to-end purchase workflow for various fuel types and confirms that business logic related to inventory, pricing, and UI state is functioning as expected.

#### Happy Path Scenarios:

**TC-BE01:** User can purchase a valid quantity of Gas, Electricity, or Oil when units are available.

**TC-BE02:** Purchasing the full available quantity of a fuel type updates the inventory to zero and disables further purchases.

**TC-BE03:** The Reset button clears prior purchases and restores inventory to baseline values.

**TC-BE04:** The displayed price per unit remains consistent before and after transactions.

**TC-BE05:** The application prevents purchase of fuel types marked as not available.

#### Unhappy Path Scenarios:

**TC-BE06:** Purchase attempt fails when quantity entered exceeds available units.

**TC-BE07:** Negative or zero values in the quantity field result in no transaction and appropriate feedback.

**TC-BE08:** Alphanumeric or special characters entered in the quantity field are either blocked or ignored.

**TC-BE09:** Inventory values should not display negative numbers after any transaction.

**TC-BE10:** The Buy button is inactive or ignored if the quantity field is blank.

**TC-BE11:** Promotional discounts applied to fuel types (e.g., Gas) are reflected accurately in both the visual message and the pricing logic.

**TC-BE12:** Any inconsistency between promotional labels and actual discounts is noted and flagged for UI correction.

## 8. Conclusion

This document outlines a focused test approach for validating the ENSEK Energy Portal's UI and transactional behaviour under candidate evaluation conditions. Emphasis was placed on validating realistic user flows, identifying boundary issues, and highlighting functional and visual inconsistencies.

While not exhaustive, the test conditions defined herein target core business interactions and UI risks that would matter in a production-facing environment.

Additional testing activities, such as regression, accessibility, cross-browser validation, and backend verification would typically complement this scope in a full delivery cycle.

The goal of this submission is to demonstrate both structured QA thinking and pragmatic prioritisation under limited execution time.