

# ENSEK Energy Application - Comprehensive Test Report

**Prepared by:**

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**Date:**

## 1. Test Scope

### Functional Areas Covered:

1. User Registration
2. User Login
3. Energy Purchase

## 2. Detailed Test Cases by Functional Area

### 2.1 User Registration

#### Test Case REG-001: Valid Registration

##### Steps:

1. Navigate to "/Register"
2. Enter email: `valid_user@domain.com`
3. Enter password: `Valid@Pass123`
4. Click "Register"

#### Test Case REG-002: Duplicate Email Registration

##### Steps:

1. Register with email: `test@example.com`
2. Logout
3. Attempt re-registration with same email

### **Test Case REG-003: Invalid Email Domain (.comarade)**

#### **Steps:**

1. Enter email: `test@domain.comarade`
2. Enter valid password
3. Click "Register"

### **Test Case PWD-001: Missing Uppercase Character**

#### **Steps:**

1. Enter password: `password@123`
2. Submit registration

### **Test Case PWD-002: Missing Digit**

#### **Steps:**

1. Enter password: `Password@`
2. Submit registration

### **Test Case PWD-006: Password with Spaces**

#### **Steps:**

1. Enter password: `Pass word@123`
2. Submit registration

## **2.2 User Login**

### **Test Case LOGIN-001: Valid Credentials**

#### **Steps:**

1. Enter registered email/password
2. Click "Login"

## **Test Case LOGIN-002: Invalid Password**

### **Steps:**

1. Enter valid email
2. Enter wrong password
3. Submit

## **Test Case LOGIN-003: Unregistered Email**

### **Steps:**

1. Enter non-existent email
2. Enter any password
3. Submit

## **Test Case LOGIN-004: Empty Email Field**

### **Steps:**

1. Leave email blank
2. Enter valid password
3. Submit

## **Test Case LOGIN-005: Empty Password Field**

### **Steps:**

1. Enter valid email
2. Leave password blank
3. Submit

## **2.3 Energy Purchase**

### **Test Case PURCH-001: Valid Purchase**

#### **Steps:**

1. Login

2. Select Energy > Gas
3. Enter quantity  $\leq$  available units
4. Complete purchase

### **Test Case PURCH-002: Zero Quantity Purchase**

#### **Steps:**

1. Enter quantity: 0
2. Attempt purchase

### **Test Case PURCH-003: Negative Quantity Purchase**

#### **Steps:**

1. Enter quantity: -5
2. Attempt purchase

### **Test Case PURCH-005: Over-Purchase Creating Negative Inventory**

#### **Steps:**

1. Note available units (e.g., 3000)
2. Enter quantity: 6000
3. Complete purchase
4. Check remaining units

### 3. Defect Report

Defect ID	Failed Test Case	Description	Severity
DEF-006	REG-003	Accepts invalid email domains (.comarade)	High
DEF-007	PWD-006	Allows passwords with spaces	High
DEF-011	PURCH-005	Creates negative inventory on over-purchase	Critical

### 4. Test Coverage Metrics

Functional Area	Total Test Cases
User Registration	6
User Login	5
Energy Purchase	4

# 5. Risk Assessment

Risk Scenario	Potential Impact
Negative inventory	Financial misreporting
Weak password policy	Security vulnerabilities
Invalid domain acceptance	Data integrity issues