🧭Introduction

This system is designed to track, monitor, and manage equipment, meters, energy usage, service events, and downtime across multiple sites. Accurate data entry at each stage is crucial to assess equipment health, calculate downtime costs, plan preventative maintenance, and manage financial and operational risk.

💡 **Important:** Each site, meter, and equipment record must be entered separately.

🏗️ System Workflow: The Step-by-Step Process

The order in which data is entered is critical for the system to function correctly: **Sites → Meters → Equipment → Meter Readings → Service Events → Downtime Events → Analytics & Dashboards**.

Step 1: 🏢 Maintain Sites

📌Purpose

Sites are the foundation of the system. Each site must have its own record before adding meters or equipment.

Key Fields

- Site Name
- Address
- Estimated cost of downtime (£/hour)

Actions

- Add Site
- Edit Site
- Delete Site

💡 Best Practices

- Configure all active sites first.
- Each site must be unique and accurate.

Step 2: ⚡ Maintain Meters

📌Purpose

Meters track energy usage for electricity, gas, or water at each site.

Key Fields

- Site
- Meter Name
- Meter Type
- Unit
- Notes

Actions

- Add Meter
- Edit Meter
- Delete Meter

💡 Best Practices

- Always link meters to the correct site.
- Use consistent naming.
- Ensure unit matches meter type.

Step 3: 🔧Add Equipment

📌Purpose

Equipment must be assigned to a site and a meter.

Key Fields

- Equipment Name
- Site
- Meter
- Category
- Manufacturer / Model / Serial
- Install Date
- Expected Life / Downtime
- Warranty Expiry / Maintenance Period
- Energy Type / Rated Power / Usage
- Criticality

Actions

- Create Equipment

- Edit Equipment
- Cancel

💡 Best Practices

- Link every piece of equipment to a site and a meter.
- Record realistic usage and downtime estimates.
- Ensure energy data aligns with actual specifications.

Step 4: ⚡ Meter Readings

📌Purpose

Track energy consumption and cost monthly for each meter.

Key Fields

- Meter
- Month
- kWh
- Cost (£)

Actions

- Add Reading
- Edit Reading
- Delete Reading

💡 Best Practices

- Enter readings monthly.
- Ensure correct site and meter selection.
- Keep estimates realistic.

Step 5: 🛠️ Service Events

📌Purpose

Record all service and maintenance events for equipment.

Key Fields

- Service Date
- Service Type
- Provider
- Cost (£)
- Next Due Date
- Notes

Actions

- Add Service Event
- Edit Service Event
- Delete Service Event

💡 Best Practices

- Record service immediately.
- Choose the correct service type.
- Include detailed notes.

Step 6: ⏱️ Downtime Events

📌Purpose

Track periods when equipment is unavailable.

Key Fields

- Start / End Date & Time
- Downtime Reason
- Cost (£)
- Impact Notes

Actions

- Add Downtime Event
- Edit Downtime Event
- Delete Downtime Event

💡 Best Practices

- Log downtime immediately.
- Use precise reasons.
- Include notes on operational or financial impact.

Step 7: 📊 Using the Dashboard

Overview

Aggregates all data from sites, meters, equipment, service events, and downtime.

Sections

- Summary Cards
- High-Risk Equipment Table

- Charts
- Full Equipment List

💡 Best Practices

- Review high-risk equipment regularly.
- Use charts to identify cost trends.
- Update records consistently.

📈 Energy Comparison Analytics

This screen moves beyond simple tracking to active benchmarking and cost-reduction analysis.

📌 Purpose

To compare energy performance across different meters or sites to identify anomalies, verify the ROI of new equipment, and spot uncompetitive energy tariffs.

🧭 How to Use

1. **Select Baselines:** Choose a "Total Usage" view or a specific Site/Meter from the primary dropdown.
2. **Add Comparison:** Select a second Site/Meter in the "vs" dropdown to overlay their data.
3. **Analyze Trends:** Use the dual-axis line graph to see how Usage (KWh) relates to Cost (£).

- **Best Practice:** Use **Comparison Mode** to benchmark similar sites. If KWh usage is identical but costs differ, investigate your energy contracts.

📑 Activity Log (History)

This screen provides a transparent audit trail of all changes within the system.

📌 Purpose

To provide accountability and data recovery by answering "Who changed what, and when?"

🧭 How it Works

- **Action Badges:** Actions are color-coded: **Green (Create)**, **Blue (Update)**, and **Red (Delete)**.
- **Data Deep-Dive:** Click "View Data" to see the raw JSON snapshot of the record at the time of the change.
- **Best Practice:** Regularly scan for "Delete" actions to ensure data integrity and investigate accidental removals.

🧮 Final Notes

- Step order matters: Sites → Meters → Equipment → Meter Readings → Service Events → Downtime Events → Dashboard
- Accuracy is crucial.
- Consistent naming conventions improve navigation and auditing.