

PROBLEM STATEMENT



To develop an interactive dashboard that monitors the energy performance of various industry sectors, supporting the progress towards achieving Green Mark certification.

APPROACH



- Showcase clear benchmarks for different industry sectors based on Green Mark requirements
- Highlight any anomalies or patterns
- Develop a website prototype featuring an interactive dashboard that provides useful information to the users

BUILDING AND CONSTRUCTION AUTHORITY (BCA) GREEN MARK CERTIFICATION

What is it?

A national sustainability rating system for buildings, evaluating how it is designed, built, and operated, and its environmental impact.

Our focus: Building's energy performance

Why is it important?

Drives lower carbon footprint and operating costs, improving energy efficiency and ESG performance while enhancing sustainability.

Certification Tiers



ENERGY EFFICIENCY PATHWAYS

- Pathway 1 - Energy Use Intensity (EUI)** Tracks energy usage per square meter
- Pathway 2 - Fixed Metrics** Evaluates different energy metrics (e.g. lighting, aircon)
- Pathway 3 - Energy Savings** Awards buildings that show energy reduction over time

Note: Due to limitations in data and qualifications, our project focuses on pathway 1 and relevant pathway 2 metrics

DASHBOARD

In the main dashboard, users can clearly identify whether they have met the Green Mark certification standards.

ENERGY USAGE OVERVIEW

- Energy usage up to current date and energy usage per month plotted against the Green Mark benchmarks
- Energy usage by energy meter & category
- Energy usage compared to the previous year's average
- Relevant pathway 2 metrics (e.g., lighting usage, total system efficiency)



Helps users monitor both the overall and detailed energy consumption patterns, so as to identify high-usage periods or inefficient areas.

IMPACT OF EXTERNAL FACTORS

- Energy usage plotted against:
 - Sunshine duration
 - Temperature
 - Humidity
 - Cloud cover percentage



Enables users to understand how external factors like weather conditions influence their energy usage, thus supporting smarter energy management.

ANOMALIES AND ALERTS

- The relevant energy meter and date of occurrence for anomalies detected will be flagged out



Notifies users of unusual energy patterns, thus, allowing quick investigation and timely corrective action.

Note: All figures and illustrations are hypothetical and used for demonstration purposes only

