



# SMART FACTORY ENERGY ANALYTICS DASHBOARD



# Smart Factory Energy Analytics Dashboard

Date Hierarchy

All

Location

All



Total Cost

\$18.0M



Total Energy

4.42M kWh



Projected Savings

883.2K



Total Carbon

1.71M kg



## Top 5 Plants by Energy

100%

Mecca Cooling Plant

524.98K

Dammam Oil Refinery

514.97K

Khobar Chemicals

466.37K

Medina Food Processing

459.23K

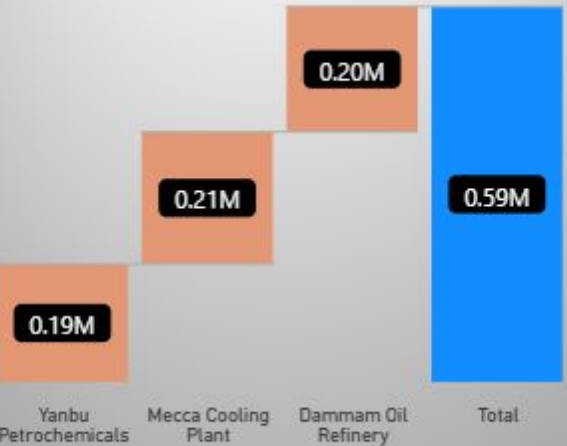
Yanbu Petrochemicals

457.10K

87.1%

## Top 3 Plants by Carbon Emissions

● Increase ● Decrease ● Total

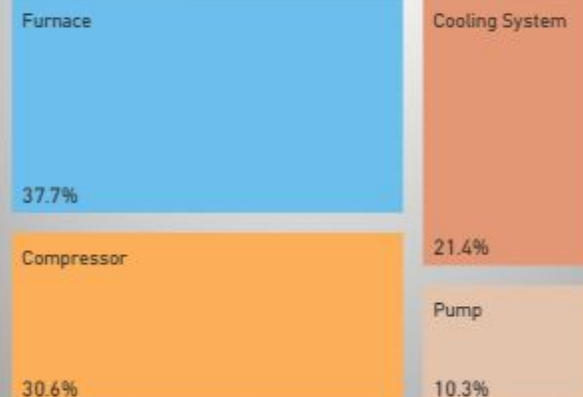


## Energy vs Cost by Year

● Total Energy Consumed (kWh) ● Total Cost (USD)

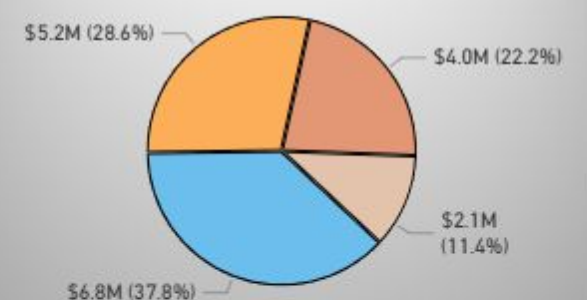


## Energy Breakdown



## Cost by Machine Type

● Furnace ● Compressor ● Cooling System ● Pump



# Dashboard 1: Summary

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**Dashboard Summary** – This dashboard provides a comprehensive overview of energy consumption, costs, and carbon emissions across smart factory plants. It enables decision-makers to monitor performance, identify high energy-consuming plants, and explore opportunities for cost savings and sustainability improvements.

## **Key Metrics Displayed:**

**Total Cost: \$18.0M** – Overall energy expenditure.

**Total Energy: 4.42M kWh** – Cumulative energy consumption.

**Projected Savings: 883.2K** – Potential savings identified through optimization.

**Total Carbon: 1.71M kg** – Carbon emissions footprint.

## **Filters Available:**

- Interactive slicers for Date Hierarchy and Location to allow tailored analysis.

## **Drill-Through Analysis**

- A detailed drill-through table has been added to this dashboard to provide insights, supporting deeper analysis.

# Dashboard 1: Core Visual Insights

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## Top 5 Plants by Energy

- Highest consumer: Mecca Cooling Plant (524.98K kWh).
- Other major plants: Dammam Oil Refinery, Khobar Chemicals, Medina Food Processing, Yanbu Petrochemicals.
- Highlights where energy usage is most concentrated.

## Top 3 Plants by Carbon Emissions

- Major contributors: Dammam Oil Refinery (0.20M kg), Mecca Cooling Plant (0.21M kg), Yanbu Petrochemicals (0.19M kg).
- Supports sustainability tracking and carbon reduction initiatives.

## Energy vs Cost by Year (2021–2025)

- Energy consumption remains steady, but costs fluctuate (peaked at \$4.12M in 2024, reduced to \$2.66M in 2025).
- Shows efficiency improvements and cost control trends.

# Dashboard 1: Core Visual Insights

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## Energy Breakdown by Machine Type

- Furnace: 37.7% (largest consumer).
- Compressor: 30.6%.
- Cooling System: 21.4%.
- Pump: 10.3%.

## Helps prioritize optimization by equipment type.

- Cost by Machine Type
- Furnace: \$6.8M (37.8%).
- Compressor: \$5.2M (28.6%).
- Cooling System: \$4.0M (22.2%).
- Pump: \$2.1M (11.4%).
- Aligns cost allocation with energy breakdown.



Thank  
you!!!  
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