

A hand holding a glowing lightbulb against a blurred background of trees. The lightbulb is the central focus, emitting a warm, yellowish glow. The background is a soft-focus view of green foliage and branches, suggesting an outdoor setting. The overall tone is serene and hopeful, symbolizing an idea or energy.

Energy Consumption Pattern Analysis

ENEL Energy: Analytics Of Distribution and Consumption Patterns

Objectives of this project:

- To provide insight for energy companies to:
 - ✓ *Understand historical consumption patterns*
 - ✓ *Identify peak usage times*
 - ✓ *Optimize energy distribution and consumption patterns*
- To provide business intelligence analysis to ENEL Energy as a basis of its data-driven decisions for:
 - ✓ *Innovation and enhancement of its operations capabilities,*
 - ✓ *Seamless energy supply to meet the diverse needs of its consumers*

Project Focus Areas to answer Problem Statement:

- To provide insight for energy companies to:
 - ✓ *Analyze consumption patterns over time*
 - ✓ *Identify peak usage times and seasonal variations*
 - ✓ *Establish correlations between energy consumption and external factors such as weather, demographics, and economic factors*
 - ✓ *Build predictive models to forecast future consumption patterns*

Energy Consumption (Descriptive and Predictive) Dashboard

Energy Dashboard

Total Consumption

1.55M

Population

10M

Number of Unemployment

3.18K

Average Income

\$32.29M

GDP Growth Rate

1.94K

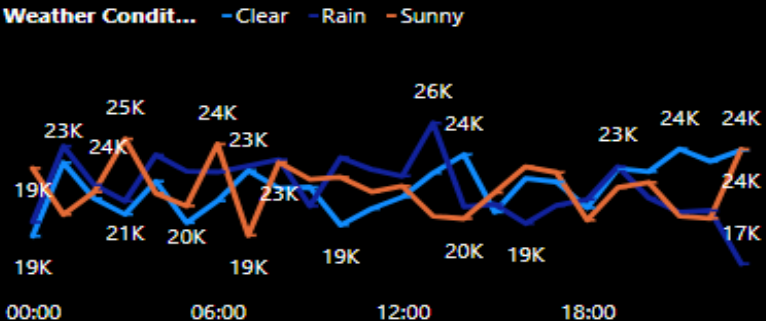
Year

Year
☐ Select all
☐ 2021

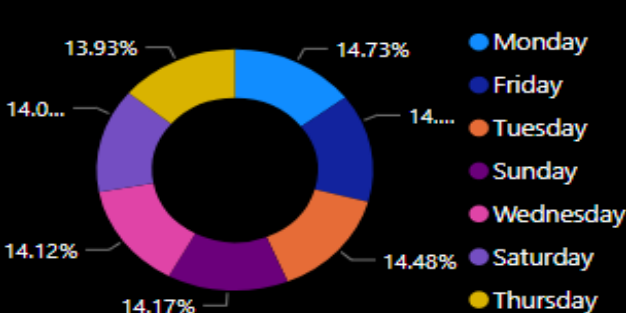
Weather

Weather
☐ Select all
☐ Clear
☐ Rain

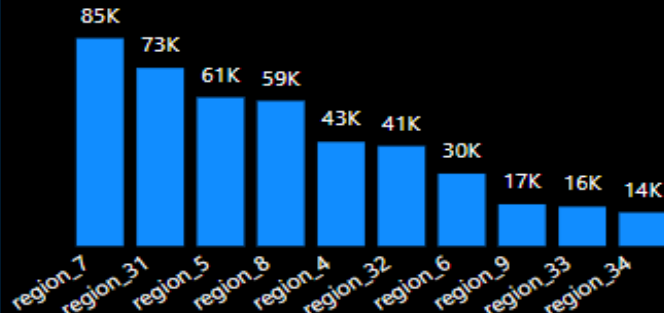
Total Consumption by Time and Weather Condition



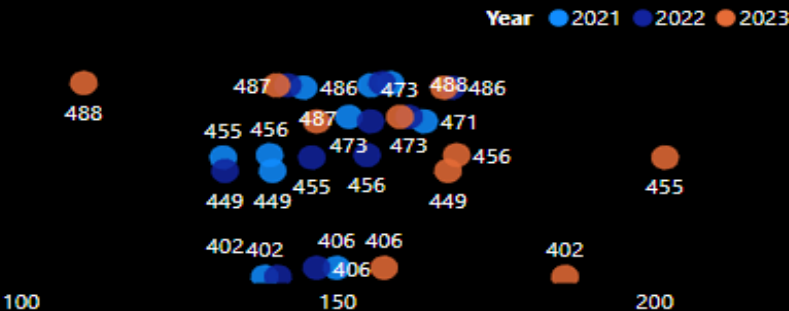
Total Consumption by Day



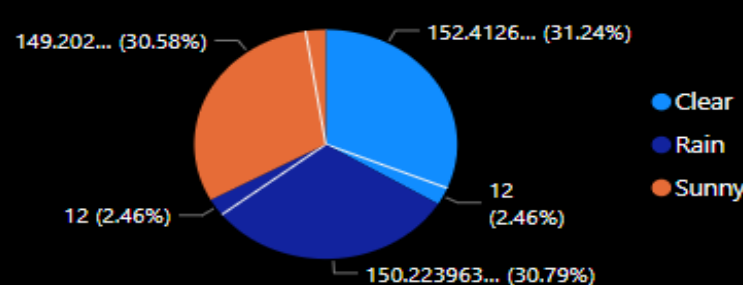
Consumption by Top 10 Region



Avg of Consumption by Yr & Population Density



Total Consumption by Top 10 Industrial Output Index and Weather Condition



Total Consumption by Year and Month



Business Intelligence Insights and Recommendations

- There was unexcepted high in the 2021, above the range of excepted of 58297, and the unexcepted high was 94966.41
- Low population dense region has less consumption
- Sum of consumption drop from 76067.12 to 336302 during is steepest decline between June 2021 and June 2022
- Recommending the supply of energy to the less dense populated region
- In 2023 which has a high dense area with less energy contribution, recommend more energy supply over this region for more income generation.
- Also recommend equal distribution of energy and efficiency for better income generation