



# SMART UTILITY INSIGHTS

PRESENTED BY SANJAY POLAMARASSETTI



# ABOUT FLUENTGRID



**Fluentgrid Limited is a digital transformation solutions company known for its software products and services, particularly in the areas of energy utilities, smart cities, and data analytics. They aim to facilitate a global transition towards smarter, more sustainable solutions for a better world.**



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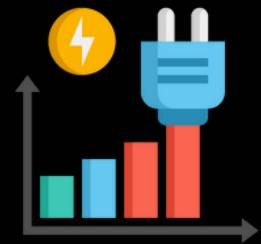
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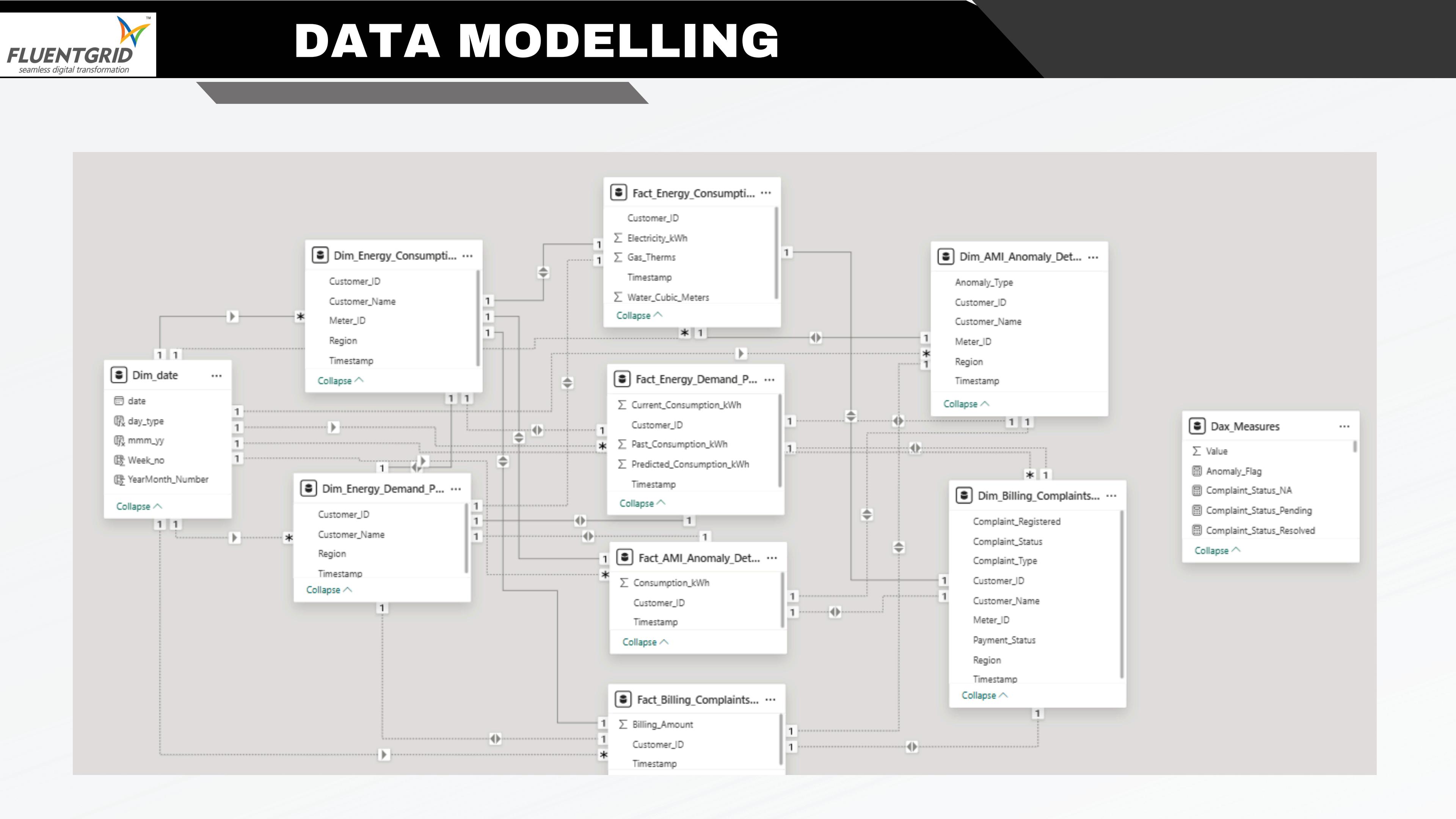
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# ENERGY CONSUMPTION

**Energy Consumption** refers to the total amount of electrical energy used by a consumer, device, or system over a specific period, typically measured in kilowatt-hours (kWh).







# ENERGY CONSUMPTION



## Energy Consumption



29.11K



Total Electricity Consumption

2.63K



Total Gas Consumption

5.37K



Total Water Consumption

12.17K!  
LM: 15.65K (-22.25%)

1.20K!  
LM: 1.28K (-6.45%)

2.44K!  
LM: 2.66K (-8.29%)

Month

All

Region

All

Customer\_ID

All

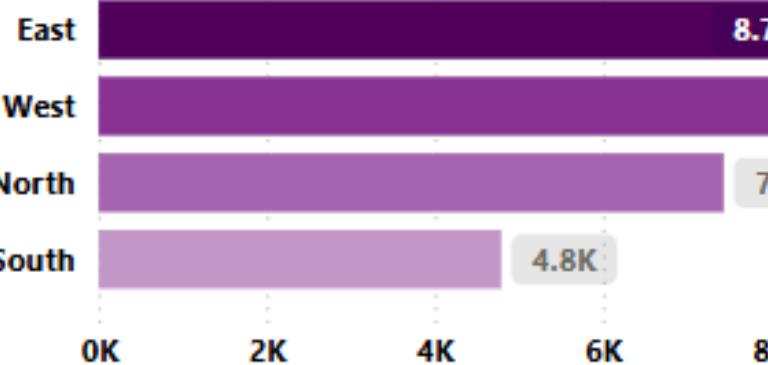
### Water Consumption



#### Electricity Consumption



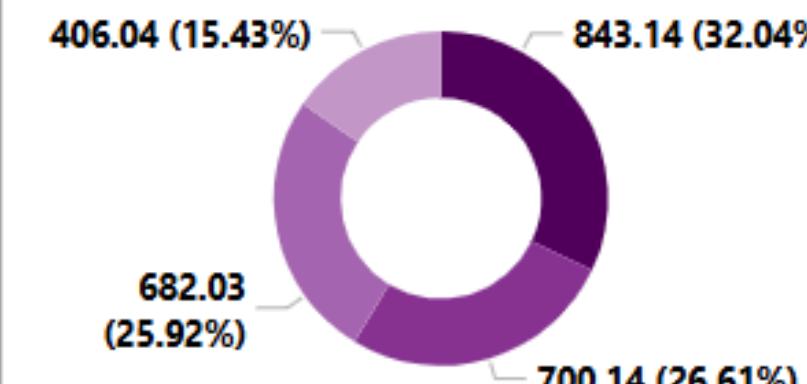
#### Consumption by Region



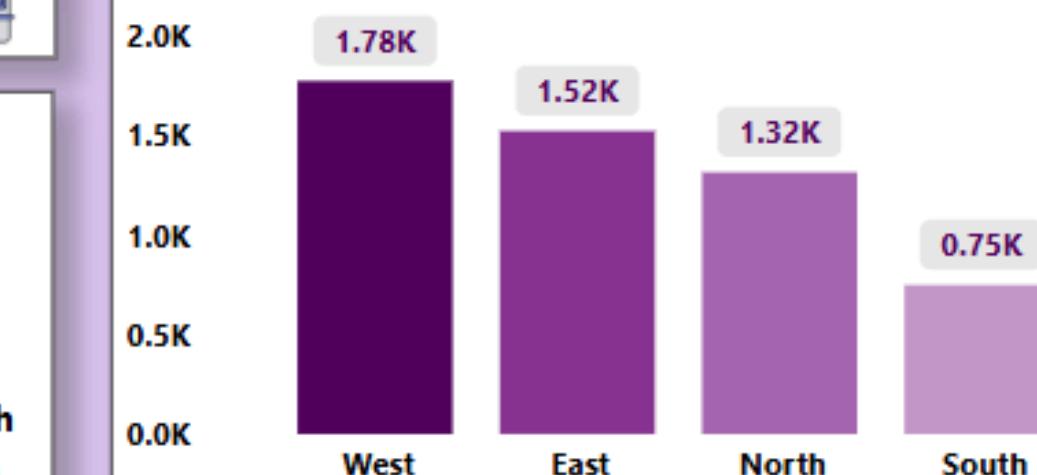
#### Gas Consumption



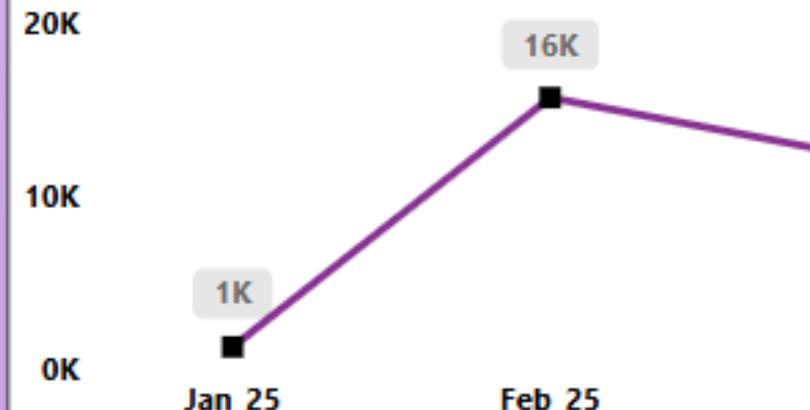
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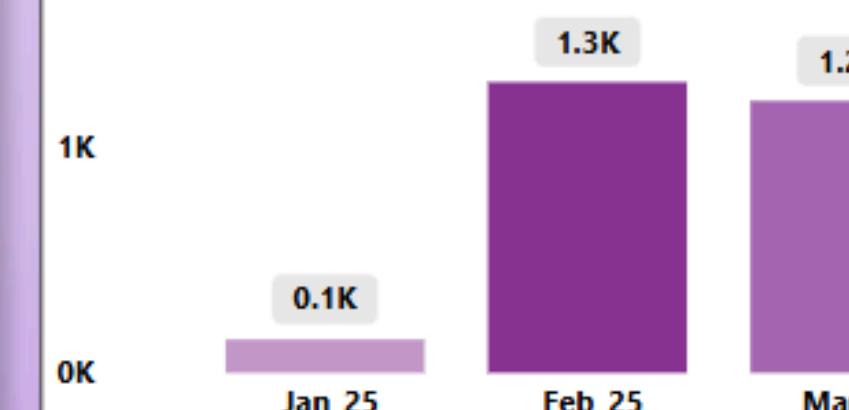
#### Consumption by Region



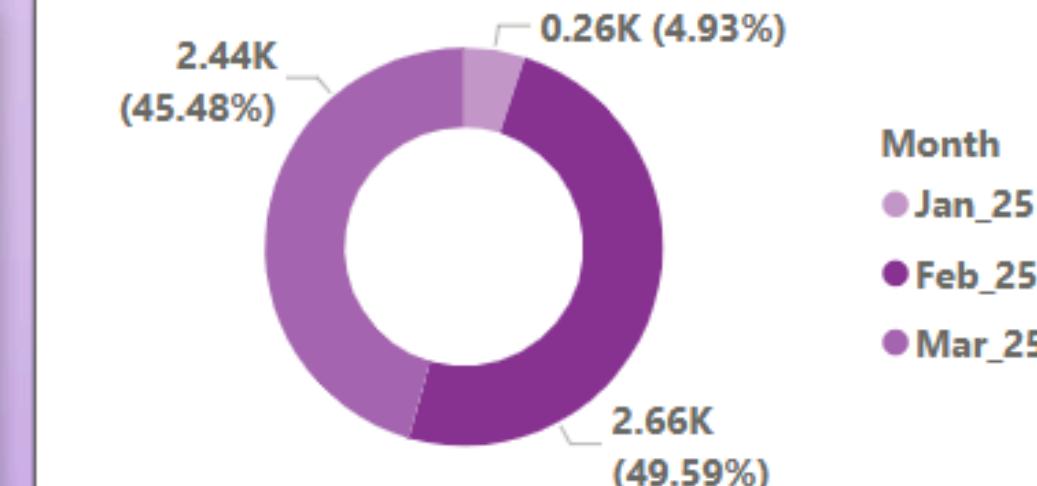
#### Consumption by Month



#### Consumption by Month



#### Consumption by Month





# ENERGY CONSUMPTION

- **TOTAL CURRENT CONSUMPTION: 57.03K**
- **TOTAL PAST CONSUMPTION: 58.00K**
- **TOTAL PREDICTED CONSUMPTION: 52.64K**
- **INSIGHTS:**
- **CURRENT CONSUMPTION DROPPED BY 18.33% VS LAST MONTH.**
- **SOUTH REGION SHOWS THE LOWEST CURRENT AND PREDICTED CONSUMPTION.**
- **MARCH HAD THE HIGHEST CONSUMPTION ACROSS ALL THREE METRICS.**



# ENERGY DEMAND PREDICTION

**Energy Demand Prediction** is the forecasting of future energy usage patterns using historical data, weather trends, and AI-driven analytics.





# ENERGY DEMAND PREDICTION

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## Energy Demand Prediction

Icons: Bar chart, House, Bar chart with plug, Bar chart, Magnifying glass, Document with error.

57.03K Total Current Consumption	58.00K Total Past Consumption	52.64K Total Predicted Consumption	Month All	Region All	Customer_ID All
24.38K! LM: 29.85K (-18.33%)	22.46K! LM: 32.38K (-30.62%)	23.49K! LM: 25.53K (-8%)			Predicted Consumption

**Consumption by Region**

Legend: Current\_Consumption (Blue), Past\_Consumption (Green), Predicted\_Consumption (Red)

Region	Current_Consumption	Past_Consumption	Predicted_Consumption
West	18K	17K	16K
East	15K	15K	16K
North	15K	15K	11.8K
South	11K	11K	9K

**PRCBR**

East	52638.75 Total_Predicted_Consumption
North	52638.75 Total_Predicted_Consumption
South	52638.75 Total_Predicted_Consumption
West	52638.75 Total_Predicted_Consumption

**PRCBM**

3.61K Jan_Predicted_Cons
25.53K Feb_Predicted_Cons
23.49K Mar_Predicted_Cons

**Consumption by Month**

Legend: Current\_Consumption (Blue), Past\_Consumption (Green), Predicted\_Consumption (Red)

Month	Current_Consumption	Past_Consumption	Predicted_Consumption
Jan_25	3K	3K	3K
Feb_25	32K	30K	30K
Mar_25	24K	22K	23K

CCBR = Current Consumption by Region, PCBMR = Past Consumption by Month, PRCBR = Predict Consumption by Region, PRCBM = Predict Consumption by Month



# ENERGY DEMAND PREDICTION

- FEB HAD THE HIGHEST PREDICTED CONSUMPTION (25.53K)
  - DECLINE OBSERVED IN PREDICTED CONSUMPTION FOR MARCH (23.49K)
  - WEST AND EAST REGIONS SHOW HIGH PREDICTED VALUES (OVER 52K EACH)
- ACTION:**
- ADJUST ENERGY PROCUREMENT PLANS FOR Q2 2025 BASED ON DECLINING TREND.



# AMI ANOMALY DETECTION

AMI Anomaly Detection refers to the process of identifying irregular or suspicious patterns in energy usage data collected from Advanced Metering Infrastructure (AMI) systems.





# AMI ANOMALY DETECTION

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## AMI Anomaly Detection

Consumption by Region

Region Month

Total\_consumption Total\_Predicted\_Consumption

Month\_Over\_Month\_Consumption\_Chg%

Increase Decrease

Feb\_25 Mar\_25

Customer Statistics

Meter_ID	Customer_ID	Total_consumption	Total_Predicted_Consumption	Anomaly_Flag
METER1104	CUST063	235.58	429.34	1
METER1111	CUST006	167.35	807.77	1
METER1194	CUST067	57.53	558.21	1
METER1230	CUST002	381.48	511.40	1
METER1256	CUST080	482.66	255.86	1
METER1265	CUST056	167.35	145.54	0
<b>Total</b>		<b>26061.64</b>	<b>52638.75</b>	<b>1</b>

26.06K Total\_Consumption

11.13K! LM: 13.49K (-17.44%)

52.64K Total\_Predicted\_Consumption

23.49K! LM: 25.53K (-8%)

Anomaly\_Type All

Month All

Region All

Customer\_ID All

Consumption by Region

Region Month

Total\_consumption Total\_Predicted\_Consumption

20K  
10K  
0K

East North South West

11.91K 19.39K 23.72K 23.68K

7K 12K 18K 16K

5K 7K 6K 8K

Region Month

31 EnergyTheft

40 Faulty Meter

29 Normal

14 11 9 12

8 8 6 8

6 7 3

0 10

EnergyTheft

Faulty Meter

Normal

TC = Total Consumption, LM = Last Month, TPC = Total Predicted Consumption



# AMI ANOMALY DETECTION

- **TOTAL CONSUMPTION: 26.06K | PREDICTED: 52.64K**
- **DROP OF 17.44% IN ACTUAL CONSUMPTION**
- **LARGE MOM CHANGE: +836.85% IN FEB, THEN -17.44% IN MAR**
- **ANOMALIES DETECTED:**
- **31 ENERGY THEFT, 40 FAULTY METERS, 29 NORMAL**
- **HIGHEST ANOMALY COUNT IN NORTH REGION**

## ACTION:

- **CONDUCT METER AUDITS IN NORTH & WEST REGIONS.**



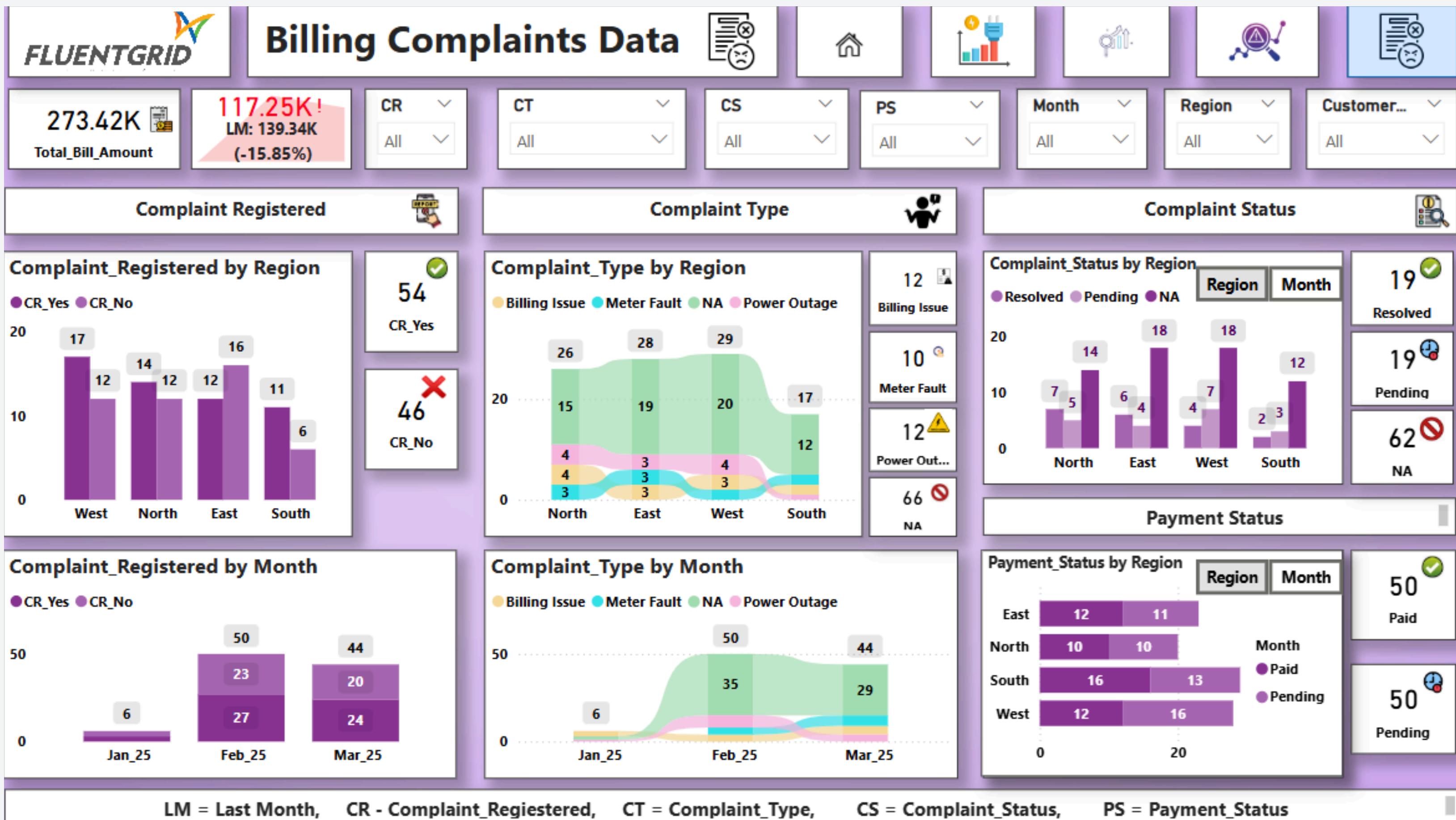
# BILLING COMPLAINTS

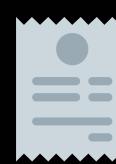
**Billing Complaints** refer to customer-reported issues or disputes related to their electricity bills, including concerns about incorrect charges, unexpected usage patterns, or delayed billing.





# BILLING COMPLAINTS





# BILLING COMPLAINTS

- **TOTAL BILL AMOUNT: 273.42K (↓15.85% VS LM)**
- **COMPLAINT REGISTERED (YES): 54 | (NO): 46**
- **TYPES: METER FAULT (28), BILLING ISSUE (26), POWER OUTAGE (12)**
- **STATUS: 19 RESOLVED, 19 PENDING, 62 NA**
- **PAYMENT STATUS: 50 PAID, 50 PENDING**

## ACTION:

- **INVESTIGATE UNRESOLVED COMPLAINTS AND FOLLOW UP ON PENDING PAYMENTS.**

# TEAM DATA ANALYTICS



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# THANK YOU