

# US ELECTRIC GRID OUTAGES (2002 – 2023)

## PROBLEM STATEMENT

The U.S. power grid has experienced a significant number of electric outage incidents from January 2002 to July 2023, leading to substantial disruptions in service and varying degrees of impact on consumers, businesses, and emergency management systems.

### Current Pains

- Inconsistent Outage Patterns
- Geographic Disparities
- Variable Response Times

### Opportunities


- Predictive Analytics
- Infrastructure Investment
- Enhanced Communication

### Goal

Develop a comprehensive analysis of electric outage incidents to identify trends, inefficiencies, and predictive insights that will inform strategies for improving reliability and efficiency in the power grid, ultimately enhancing customer satisfaction and safety.

## Data


The dataset comprises electric outage incidents across the U.S. power grid from January 2002 to July 2023, including:


 : Start and End Date

 : Start and End Time

 : Location

 : Demand loss MWh

 : Estimated no. of people affected

 : Type of event causing outages

## Analysis Questions?

- ❖ When (date and time) the outage began and ended.
- ❖ Where (state or region) the outage occurred?
- ❖ The reason for the outage (e.g., bad weather, malfunctioning equipment).
- ❖ The number of consumers impacted by the outage.
- ❖ The loss of demand during the outage, measured in megawatts.

## Problems

- ❖ Ageing Infrastructure
- ❖ Extreme Weather Events
- ❖ Overload in the System
- ❖ Inadequate maintenance and financial investment

## Results



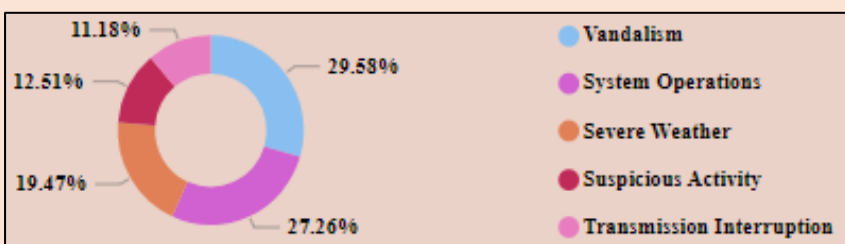
172 M Customers got affected



690 MW Demand Loss



32.93 hrs avg of event duration



## Impact



### Customer Satisfaction

Enhanced outage management leads to fewer outages and quicker restoration times, boosting customer trust and loyalty.



### Cost Savings

Predictive maintenance and streamlined processes reduce operational costs and downtime, allowing for better resource allocation.