IBM: ADS101

Applied Data Science - Group 2

## Project4: Electricity Prices Prediction

# Project Overview

# ****Problem Statement:****

# Our goal is to build a tool that can predict future electricity prices. This tool will help energy companies and consumers make smart decisions about when to use or buy electricity. To do this, we'll go through several steps, including preparing data, creating useful features, picking the right prediction method, training the model, and checking how well it works.

# ****Step-by-Step Plan:****

**1. Data Gathering:**

* We'll collect historical data that tells us about past electricity prices. This data will also include things like the date, how much electricity was needed, the weather, and economic info.

**2. Data Cleaning:**

* We'll tidy up the data to make sure it's reliable and ready for analysis. This means fixing any mistakes and dealing with missing information.

**3. Feature Creation:**

* We'll make new pieces of information that could help the prediction. For example, we might use the day of the week, month, or past price trends to make our predictions better.

**4. Choosing a Prediction Method:**

* We'll decide on a way to make our predictions. We might use a method called ARIMA or something called LSTM, which are good at handling time-related data.

**5. Training the Model:**

* We'll teach our chosen method using the cleaned and enhanced data. This helps the model learn from past patterns.

**6. Checking Accuracy:**

* We'll measure how good our model is at predicting future electricity prices. We'll use metrics like Mean Absolute Error and Root Mean Squared Error to see how close our predictions are to the real prices.

**Project Goals:**

* Create a tool that can reliably predict future electricity prices.
* Help energy companies plan better and consumers make informed choices about electricity use.
* Reduce uncertainty about electricity costs in the market.

**Expected Results:**

* A working model that can forecast electricity prices based on past data.
* Proof of how accurate our predictions are.
* Guidelines for using the tool effectively.

**Timeline:**

* The project will happen in stages, and we expect to finish it in [insert timeline].

**Advantages:**

1. **Cost Savings:** Predicting electricity prices helps consumers buy electricity when it's cheaper, reducing their bills.
2. **Profitability:** Energy companies can adjust prices to maximize profits during peak demand periods.
3. **Efficiency:** Predictions reduce uncertainty, making the electricity market more efficient for everyone involved.

**Conclusion:**

This project is all about making electricity price predictions easier and more reliable. By following these simple steps, we aim to create a tool that benefits both energy providers and consumers, making it easier for everyone to plan and manage their electricity needs.