As a Data Scientist Associate at AkumenIA, I worked on a project to create highly accurate forecasting models for energy production, consumption, and demand. The project involved a meticulous methodology that began with data quality reporting, where we analyzed the dataset to identify missing data, duplicates, incoherent data, and outliers. We prepared a report on the analysis for the client, which helped them to better understand the quality of their data.

We then cleaned and structured the dataset to be suitable for machine learning models. In the first iteration of building machine learning models, we utilized the client's data to create forecasting models for energy production, demand, and consumption. We achieved Mean Absolute Percentage Errors (MAPE) of 0.015%, 0.03%, and 0.035% for energy production, demand, and consumption models, respectively, using models like Long Short-Term Memory (LSTM), Temporal Fusion Transformer (TFT), and Facebook's Prophet.

The client desired to further improve model accuracy, so we scraped additional data that might have correlations with target variables, such as Google Trends, Human Capital Project (HCP) indices, Bank Al-Maghrib (BKAM) data, press releases, and weather data. In the second iteration of building machine learning models, we reiterated the forecasting models using external data to improve accuracy. We achieved MAPE values of 0.009%, 0.023%, and 0.028% for energy production, demand, and consumption models, respectively.

As a team of Data Scientist Associates at AkumenIA, we successfully created highly accurate forecasting models for energy production, consumption, and demand, meeting the client's goal.