Models overview:

Prophet:

- Used as the baseline time-series model
- Captures long-term trends and seasonal patterns form historical data
- Provids forecast intervals (upper / lower) to show prediction uncertainty

Random Forest:

- Applied as a feature-based ML model.
- Includes lagged values of electricity generation
- Includes first-ordered derivatives (year to year change)

XGBoost:

- Designed to capture future dynamics more precisely
- Dose not predict absolute generation values directly
- Instead predicts the annual change (derivative / first difference)

- Final forecast is built by cumulatively adding the predicated changes.

- This approach makes the model more sensitive to emerging trends

- Helps avoid overly flat or constant-looking forecasts.