PROBLEM STATEMENT

Predicting the energy output of wind turbine based on weather condition

1. **The energy output of a wind farm is highly dependent on the weather conditions present at its site.**

   Analysis the weather conditions present at its site.

2. **If the output can be predicted more accurately, energy suppliers can coordinate the collaborative production of different energy sources more efficiently to avoid costly overproduction.**

   Develop a time series model to Predict the power output of wind farm based on the weather condition in the site (1 Hr prediction to 72 Hrs. prediction) Build an application to recommend the Power Grid to suggest the best time to utilize the energy from wind farm.

3. **Spinning turbine blades can pose a threat to flying wildlife like birds and bats.**

   keep the wind mill in high altitude place where the wind current is always high.

4. **If the temperature is too high, the air density will be low, which will lessen the energy output. If the temperature is too low, the blades and other parts might be frozen, and the wind turbine will stop working.**

   Use efficient lubricant for the wind turbine.

5. **Blade Failure in wind turbine.**

   Monitoring temperatures, vibration signatures, and structural integrity of components help to anticipate possible failures.

6. **Generator Failure in wind turbine.**

   Preventive maintenance is one way to reduce the chance of failures in a wind turbine and extend their lifetime.