Project Design Phase-I
Proposed Solution Template

Date	23 September 2022
Team ID	PNT2022TMID41192
Project Name	Predicting the energy output of wind turbine based on weather condition
Maximum Marks	2 Marks

Proposed Solution Template:

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Wind power generation differs from conventional thermal power generation due to the stochastic nature of wind. Accurate wind power forecasting reduces the need for additional balancing energy and reserve power to integrate wind power. For a wind farm that converts wind energy into electricity power, a real-time prediction system of the output power is significant.
2.	Idea / Solution description	Prediction system is developed with a method of combining statistical models and physical models. In this system, the inlet condition of the wind farm is forecasted by the auto regressive model.
3.	Novelty / Uniqueness	This project builds upon existing implementations and uses state of the art technologies to achieve highly accurate predictions
4.	Social Impact / Customer Satisfaction	Our project employs machine learning algorithms. This can be seamlessly integrated in existing windmill farms since it does not require drastic changes in the windmill infrastructure. This will attract customers.
5.	Business Model (Revenue Model)	The revenue model for this project should consist of the following, initial investments which covers the construction and real estate costs, operating costs which includes maintenance and repair costs and profits. This can be modelled in a business performance dashboard for presenting the results.
6.	Scalability of the Solution	The predictive analysis used here can be extended to other forms of energy generation such as hydroelectricity, tidal energy and solar energy.