Project Design Phase-I
Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID12909
Project Name	Predicting the energy output of Wind Turbine based on Weather conditions
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The most popular renewable energy source is wind energy, but it cannot be relied upon indefinitely. Several environmental elements have an impact on the power produced. As a result, it cannot be totally relied upon, which lowers its effectiveness.
2.	Idea / Solution description	In order to integrate with the grid and utilise its maximum potential, machine learning will be used to anticipate the energy output using historical performance data and current meteorological parameters.
3.	Novelty / Uniqueness	This model incorporates the energy outputs from the previous year and correlates them with the weather and other parameters that have an impact. We may input the weather conditions into this model to get the energy output. Additionally, based on the anticipated value and actual output value, the algorithm is changed dynamically.
4.	Social Impact / Customer Satisfaction	The use of renewable energy is increased thanks to this concept. It makes wind turbine operating more efficient. This approach is unbeatable due to the implementation costs.
5.	Business Model (Revenue Model)	The ability to enhance energy output will enable wind energy companies to generate more money. Since we can forecast the overall power output at any given moment, wind energy can be relied upon to be a reliable source.
6.	Scalability of the Solution	No new hardware needs to be installed at the wind turbine to accomplish this. The weather characteristics can be obtained from the currently installed sensors to predict electricity output. The data may be easily accessed in real time thanks to weather stations located all around the world. At the

		wind turbine control centre, the prediction can be made. To obtain correct results, the algorithm can be readily changed to function for every single wind turbine.