

# Project Design Phase-I - Solution Fit Template

**Project Title:** Predicting the energy output of Wind Turbine based on Weather conditions

**Team ID:** PNT2022TMID12909

Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> <b>CS</b>  Large Wind Energy Firms, that are seeking for a way to increase their efficiency and revenue.  Ultimately people are the customer consuming more of renewable energy.	<b>6. CUSTOMER CONSTRAINTS</b> <b>CC</b>  Increasing Wind Mill size requires a lot of money, resources and time.  Employing individuals for monitoring the power output is inefficient and inaccurate.  Frequent maintenance required.	<b>5. AVAILABLE SOLUTIONS</b> <b>AS</b>  Previous records available which can be referred for determine the power output.  Determining the power output based on only the Wind speed and direction of that particular Wind Mill.	Explore AS, differentiate
	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> <b>J&amp;P</b>  Inconsistent power supply by the company.  Revenue loss.	<b>9. PROBLEM ROOT CAUSE</b> <b>RC</b>  Wind Energy is one of the most inconsistent sources of energy.  Being not able to determine the power output at a given instant of time, makes it very difficult to integrate with the grid.  This makes it unreliable and very inconvenient form of energy.	<b>7. BEHAVIOUR</b> <b>BE</b>  Tests the model before implementing.  Studies the performance and accuracy of the model.  Calculates the benefits and profit associated with it.  Discuss the difficulties in implementing this solution.	
Focus on J&P, tap into BE, understand RC				Focus on J&P, tap into BE, understand RC

### 3. TRIGGERS

TR

With all the sectors moving towards improving efficiency rather than upgrading hardware, this serves them as an option to increase efficiency without much changes in their existing architecture.

### 4. EMOTIONS: BEFORE / AFTER

EM

BEFORE : Being not able to predict the power output puts a lot of stress on the company as they cannot satisfy their customers.

AFTER : When able to predict the power output they can meet up with their customer's demand.

### 10. YOUR SOLUTION

SL

Using Machine Learning that takes on previous performance data and real time weather parameters to predict the energy output will help in integrating with the grid and make use of its full potential.

### 8. CHANNELS of BEHAVIOUR

CH

The performance of every single Wind Mill can be monitored from a single control station. It will be connected through a dedicated network.

It can also be manually serviced by a technician by a at the site.