Project Title: Wind Turbine based on the weather condition **Project Design Phase-I - Solution Fit Template** **Team ID:** PNT2022TMID33245

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

CS

Wind flows over the blades creating lift (similar to the effect on airplane wings), which causes the blades to turn. The blades are connected to a drive shaft that turns an electric generator, which produces (generates)

6. CUSTOMER CONSTRAINTS

CC

- Intermittent
- Low operating costs
- Noise and visual pollution
- Efficient use of land space
- Some adverse environmental impact
- Wind energy is a job creator
- Wind power is remote

5. AVAILABLE SOLUTIONS

AS

These residential windmills can generate electricity by churning the wind through its blades, which in turn rotates the turbine and generates power, which can meet the needs of a small family. The energy that is yielded from these wind turbines is clean, renewable, and are also cost-effective.

Explore AS, differentiate

Focus on J&P, tap into BE,

2. JOBS-TO-BE-DONE / PROBLEMS

J&P

Turbines produce noise and alter visual aesthetics.
Wind farms have different impacts on the environment compared to conventional power plants, but similar concerns exist over both the noise produced by the turbine blades and the visual impacts on the landscape

9. PROBLEM ROOT CAUSE

RC

The degradation, weakening and debonding of the adhesive layers (in the trailing or leading edges or on the spar/shell joint) is one of the main processes leading to wind turbine blade failure

7. BEHAVIOUR

BE

The wind speed is always fluctuating andthus the energy content of the wind is also always changing. Exactly how large the variation is depends both on the weather and on local surface conditions and obstacles.

Focus on J&P, tap into BE,

3. TRIGGERS TR

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4. EMOTIONS: BEFORE / AFTER EM

Before: who live in close proximity to wind turbines say they experience sleep disturbances, headaches and concentration problems.

After: Between working long hours, climbing turbines multiple times a day, and dealing with extreme heat in the summer and cold in the winter,

10. YOUR SOLUTION SL

Larger rotor diameters allow wind turbines to sweep more area, capture more wind, and produce more electricity. A turbine with longer blades will be able to capture more of the available wind than shorter blades—even in areas with relatively less wind.

8. CHANNELS of BEHAVIOUR CH

Online:

An efficient automated approach to wind farm operation monitoring is presented.

Offline:

Product is available for offline usage.