Project Design Phase-I - Solution Fit

Project Title: Predicting the Energy Output of Wind Turbine Based on Weather Conditions

Team ID: PNT2022TMID42367
DATE: 19 SEPTEMBER 2022

CC

1. CustomersSegment:

- Theonshore segment dominated the market and held a revenue share of 71.66% in 2021.

6. CustomerConstraints:

- Wind turbine revolves around harnessing wind energy to power a daily use product likelights.

5. Available solution:

Available solution takes lot of time in identifying the energy output of wind turbine. utilised aerostructural simulations data for a turbine and applied regression trees to forecast turbine power output, accounting for wind speed, turbulence and shear.

2. Problems/Pains:

The biggest problem
with wind turbines is that they
can be loud and unsightly,
sometimes
harming the physical
environment.

7.Behaviour:

Wind energy is tied to
variabilities of weather patterns,
especially wind speed, which are
irregular in climates with erratic
weather conditions.

TR

3. Triggers:

The energy output of a wind farm is highly dependent on the weather conditions present at its site. If the output can be predicted more accurately, energy suppliers can coordinate the collaborative production.

SL

CH

8. Channels of behaviour:

Behaviour include the functions of wind turbine weather it works properly with all the mechanisms included.

4. Emotions:

- Most significant is the hub height wind speed, followed by hub height turbulence intensity and then wind speed shear across the rotordisk.

10. Your Solutions:

Our studies are carried out on publicly available weather and energy data for a wind farm. We report on the correlation of the different variables for the energy output.