BU Wind Data Analysis and Curriculum Development

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Project Background

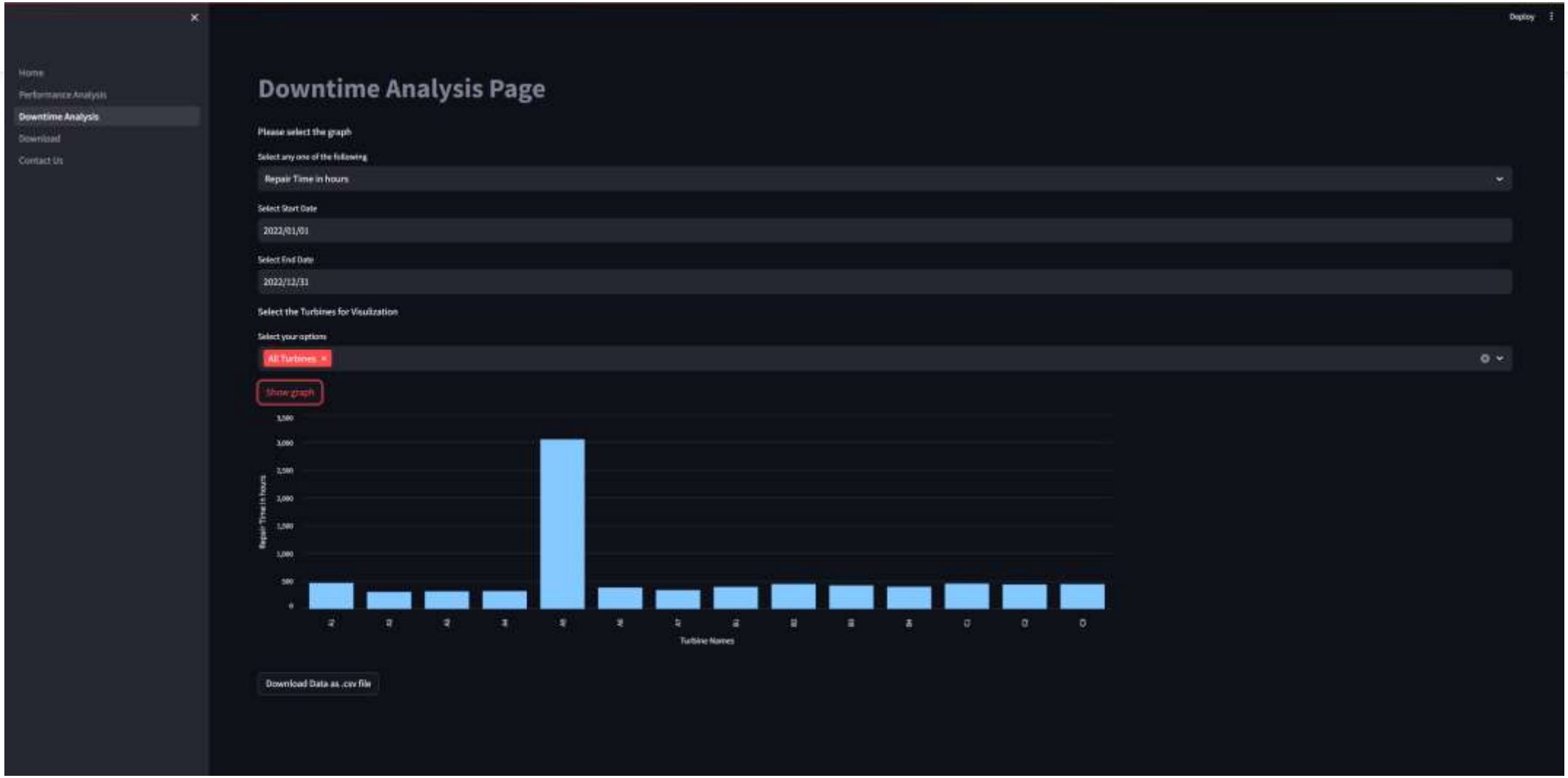
- BU is achieving its zero emissions goals by purchasing clean power from a wind farm in South Dakota.
- BU also receives data like wind speed, rotor speed, power generated, etc. in 15-minute intervals throughout the year for the 97 wind turbines.
- We plan on deploying a website to showcase the data for the same.

Key Performance Indicators

Plot name	Description
Power Curve	Line plot: Avg power generated vs wind speed for each Wind Turbine
Total power generated	Bar Chart: Total power generated for each Wind Turbine
Average power generated	Bar Chart: Average power generated for each Wind Turbine
Capacity Factor	Bar Chart: ratio of actual Power Output to maximum possible output over a period for each Wind Turbine
Full Load Operation Time	Bar Chart: Full load time for each Wind Turbine
Number of breakdowns	Bar Chart: Number of breakdowns for each Wind Turbine
Repair Time	Bar Chart: Total time under repair for each Wind Turbine
Failure Rate	Bar Chart: Failure Rates of each Wind Turbine
Mean Down Time	Bar Chart: MDT of each Wind Turbine

Performance Analysis

Downtime Analysis



Conclusion

- The project helps to understand the performance of the BU wind farm in South Dakota, based on data collected on-site, and use it to engage the BU community in efforts to decarbonize the BU campus, and for use in curricula across BU.