

WindAiza App - User Guide

Welcome to the **WindAiza App**, a world-class tool for wind resource assessment and energy forecasting. This document provides step-by-step instructions on how to use the app effectively.

1. Launching the App

1. Install the App

- Download the app installer (e.g., WindAiza_Setup_1.0.0.exe) from the official website.
- Run the installer and follow the on-screen instructions to complete the installation.

2. Open the App

- Double-click the WindAiza app icon on your desktop or search for it in your Start menu.
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2. Loading Data

1. Prepare Your Data

- Ensure your data is in CSV format with the following columns:
 - YEAR: Year of observation
 - MO: Month
 - DY: Day
 - HR: Hour
 - WS50M: Wind speed at 50 meters
 - WD50M: Wind direction at 50 meters
 - PS: Pressure

2. Load the Data

- Click the **Load Data** button in the left column of the app.
 - Select your CSV file from the file picker and click **Open**.
 - The app will process the data and display year-specific buttons in the middle column.
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3. Viewing and Analyzing Data

3.1 Viewing Year-Specific Data

- Click on a year button (e.g., **2024**) in the middle column.
- A new window will pop up, displaying data for that specific year.

3.2 Performing Analysis

- Explore the various analysis buttons in the left column under categories like:
 - **Time Series**
 - Example: Click **Time Series Wind Speed** to view a wind speed time series plot.
 - **Tables**
 - Example: Click **Daily Statistics** to view daily averages and other statistics.
 - **Histograms**
 - Example: Click **Wind Speed Distribution** to view a histogram of wind speeds.
 - **Wind Rose**
 - Example: Click **Direction and Bin** to analyze wind speed and direction by bin.
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4. Key Features

4.1 Time Series Plots

- Access time-series analysis tools under the **Time Series** section.
- Plots like daily, weekly, monthly, and annual averages are available.
- These plots open in a new window with interactive zoom and pan capabilities.

4.2 Energy Forecasting

- Use the **Energy Production Forecasting** feature to:
 - Enter turbine specifications.
 - Analyze energy output for multiple turbines.
 - Visualize wake effects using advanced modeling.

4.3 Wind Rose Diagrams

- Generate wind rose diagrams under the **Wind Rose** category to analyze wind direction and speed frequency.
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5. Exporting Results

- Most tables and plots can be exported directly.
 - Look for the **Export** or **Download** button in analysis windows to save results as CSV or images.
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6. Additional Features

6.1 NASA Data Integration

- Use the **NASA Data Import** feature to upload wind data from NASA POWER resources.

6.2 Terrain and Heat Maps

- Import terrain data (DEM) and visualize wind flow analysis with heat maps.
 - Overlay wind maps on satellite imagery for detailed insights.
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7. Support and Updates

- For technical support, visit the Help section on our website or contact sheikh@aizaenergystudio.com.
 - Regular updates will be available to enhance functionality and introduce new features.
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Thank you for using WindAiza! Your feedback is valuable to us. Let us know how we can make your experience even better.