

RENEWENE | MANAGED SERVICE FOR WIND MEASUREMENT CAMPAIGNS

Sample wind measurement campaign monitoring report

Synthetic data - no real campaign or client

A public example of the structure, technical interpretation and traceability of a Renewene deliverable.

Demonstration period: January to February 2025

Public version

EXECUTIVE SUMMARY

What this demonstration shows

This document shows how a measurement campaign can be monitored through organized data, documented checks and engineering interpretation. All data, identifiers and events are synthetic.

Key finding. The 40 m height has practically complete coverage, while the 100 m series has a material availability limitation. Wind resource results can be examined, but vertical comparisons and project conclusions require caution.

Indicator	Demonstration result
Period analysed	1 Jan 2025 to 28 Feb 2025
Technology	Synthetic LiDAR dataset
Heights	40 m and 100 m
Availability at 40 m	100.0 %
Availability at 100 m	67.8 %
Mean wind speed at 100 m	8.15 m/s

Scope of the deliverable

- organization and traceability of the dataset received;
- coverage checks and data-quality events;
- analysis of the wind speed regime, direction and temporal behaviour;
- technical interpretation with explicit limitations and next steps.

CAMPAIGN CONTEXT

Campaign overview

The demonstration represents a hypothetical onshore campaign. No real location, coordinates, client, serial number or equipment is identified.

Field	Public information
Site	Hypothetical site with no geographic reference
Instrumentation	Demonstration LiDAR
Record interval	10 minutes
Time reference	UTC-3
Heights analysed	40 m and 100 m
Analysis window	59 days

Monitoring workflow

Step	Purpose
1 Receive	Log files and campaign context
2 Check	Examine coverage, consistency and events
3 Analyse	Turn time series into technical evidence
4 Interpret	Explain impacts, limitations and actions
5 Deliver	Consolidate a reviewable history

This sample report does not claim compliance with standards, bankability, site classification or suitability for any wind turbine model.

DATA COVERAGE

Availability and continuity

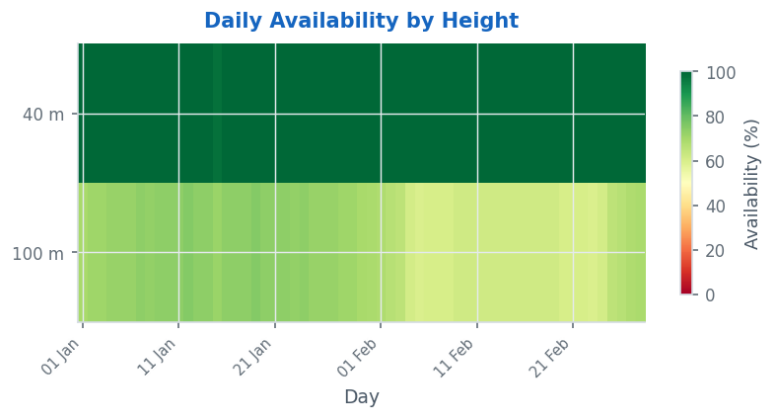


Figure 1 Daily availability by height

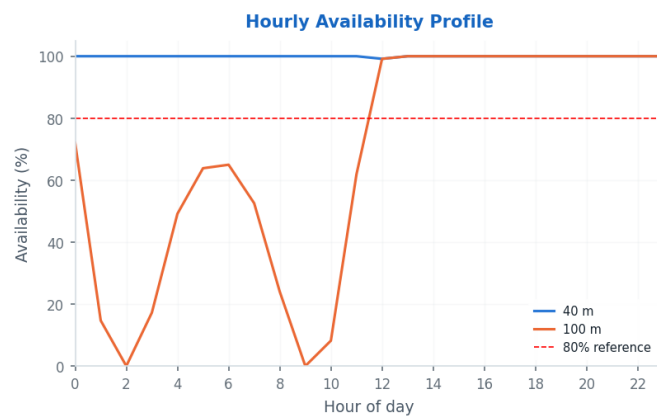


Figure 2 Mean availability by hour of day

The 40 m series is suitable for describing the behaviour observed during the period. At 100 m, coverage varies significantly and limits joint analyses across heights. The monthly availability of a reference height should not be mistaken for the availability of each measurement level.

DATA QUALITY

Events that require attention

The events below illustrate how the report separates failures that remove a variable from alerts that remain in the analysis with a caveat. The public version shows the technical effect without exposing rule names, weights or internal settings.

Event	Evidence	Implication
Insufficient coverage at 100 m	67.8 % availability	Limits vertical comparisons and positive quality conclusions
Frozen direction	8 records identified	Affected direction records are excluded from that metric
Low daily availability	Recurring alerts during the period	Requires investigation of data acquisition and follow-up

Recommended actions

- check operational logs and the acquisition settings at 100 m;
- confirm the instrument status during intervals with constant direction;
- keep events and decisions recorded in the campaign history;
- reassess coverage sufficiency before vertical profile or project studies.

Interpretation remains the responsibility of engineering. Automation organizes evidence and applies reproducible checks, but it does not replace technical judgement.

WIND RESOURCE

Wind speed regime by height

Weibull Distribution by Height

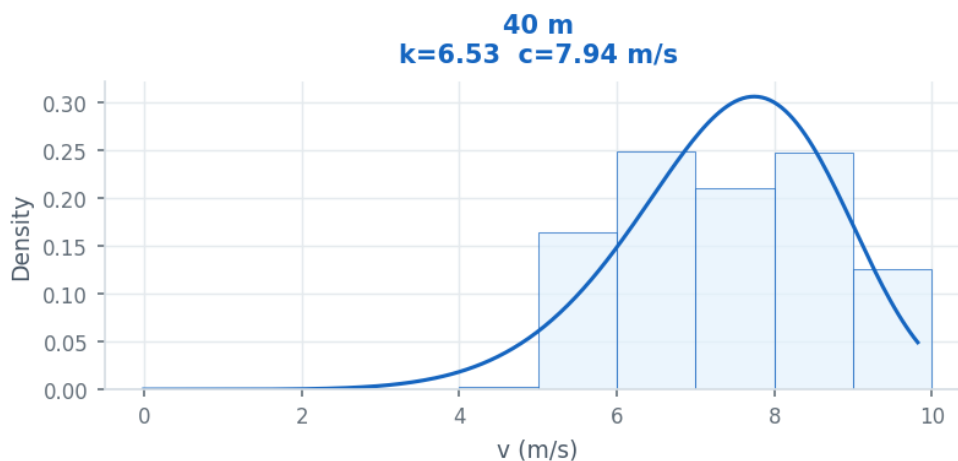


Figure 3 Wind speed distributions by height

Height	Records	Mean V	P50	Weibull k	Weibull c
40 m	8,496	7.40 m/s	7.40 m/s	6.53	7.95 m/s
100 m	5,765	8.15 m/s	7.87 m/s	5.77	8.77 m/s

The difference observed between heights is consistent with an increasing vertical profile during the synthetic period. These values do not represent a long-term estimate, energy production or project yield. No MCP adjustment was performed in this demonstration.

DIRECTIONALITY

Energy contribution by direction

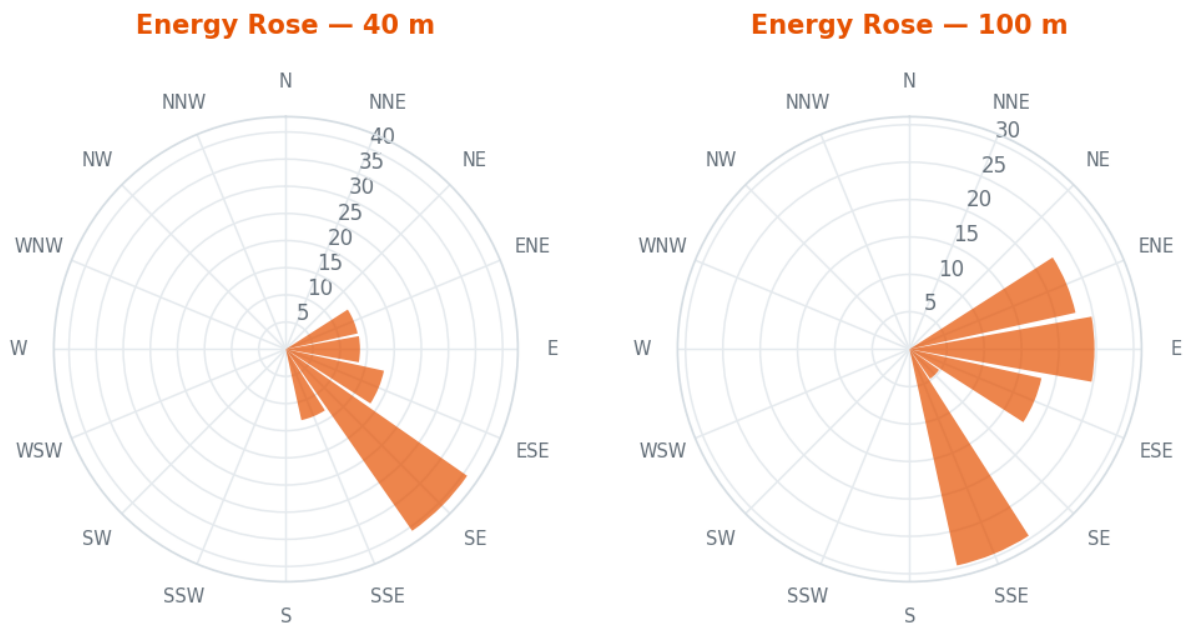


Figure 4 Energy roses at 40 m and 100 m

Energy contribution is concentrated in the east-southeast quadrant, with a noticeable change between heights. This difference matters for campaign monitoring, but it does not support conclusions about layout, wake effects, flow between positions or structural loads.

Recommended reading

- monitor the stability of the prevailing direction throughout the campaign;
- check whether the difference between heights persists once 100 m coverage is recovered;
- avoid extrapolating the directionality of a single point to the whole project area.

TEMPORAL BEHAVIOUR

Mean profile over the day

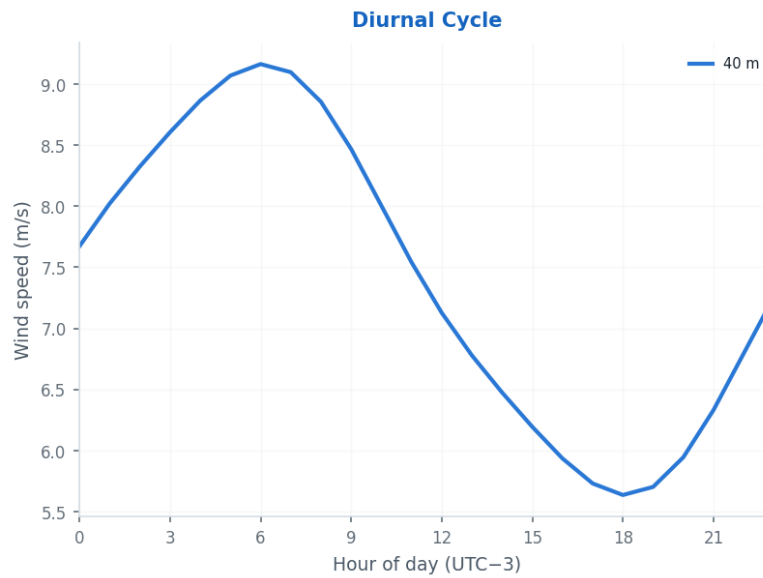


Figure 5 Mean diurnal wind speed profile

Both heights show a similar diurnal cycle, with higher values in the early morning and lower values in the late afternoon. The visible gap in the 100 m series corresponds to low availability during part of the day and should remain explicit in the interpretation.

What the chart supports

- there is a coherent temporal pattern within the demonstration period;
- wind speed at 100 m remains above 40 m at comparable hours;
- incomplete coverage prevents treating the 100 m hourly profile as a complete series.

INTERPRETATION

From evidence to action

The value of monitoring lies in turning charts and events into documented decisions. In this synthetic campaign, three points guide the next work cycle.

Evidence	Interpretation	Next action
Reduced coverage at 100 m	Material limitation for simultaneous analyses	Investigate acquisition and restore continuity
Frozen direction records	Localized failure in the direction variable	Review logs and exclude only the affected metric
Consistent difference between heights	Indication of vertical variation during the period	Extend the campaign and quantify uncertainty

This report supports

- recurring monitoring of campaign health;
- prioritization of investigations and corrections;
- technical communication between development, operations and independent review;
- a traceable history of evidence and decisions.

This report does not replace

A full assessment of design conditions, extreme-wind analysis, layout study, energy yield assessment, equipment certification or bankability opinion.

NEXT STEP

Engineering accountable for every conclusion

Bora structures the processing, the consistency of checks and the traceability of the deliverable. Renewene remains responsible for interpreting the evidence, recording limitations and explaining what requires attention.

Limitations of this demonstration

- all data, events and results are synthetic;
- no real client, campaign, equipment or location is associated with this document;
- a two-month period does not represent long-term climatology;
- the conclusions illustrate the format of the deliverable, not a project recommendation.

Discuss your campaign

An initial conversation can start with the type of instrumentation, the measurement stage, perceived availability and the desired monitoring routine. There is no need to share files at this stage.

contato@renewene.com.br

renewene.com.br/en/wind-measurement-reporting.html