

REGIONE SARDEGNA
Provincia di Sassari
COMUNI DI NULVI E TERGU

PROGETTO

PROGETTAZIONE PARCO EOLICO "MATTESUIA"



PROGETTO DEFINITIVO

COMMITTENTE



edp
Renewables

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A handwritten signature in black ink, appearing to read 'Mariano Galbo'.



OGGETTO DELL'ELABORATO

RELAZIONE ANEMOLOGICA

REV.	DATA	ATTIVITA'	REDATTO	VERIFICATO	APROVATO		
0	febbraio 2023	PRIMA EMISSIONE	MG	VF	EG		
CODICE ELABORATO		DATA	SCALA	FORMATO	FOGLIO	CODICE COMMITTENTE	
NUL-PD-R16		febbraio 2023	/	A4	1 di 8		



Title	
Preliminary Analysis, Nulvi (Sardegna), Italy.	

Reference	TCRP-ITA_0391ITAG00_EAWR-TCRP-00146
Revision	005
Date	November, 2022

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1. Objective

The objective of this report is to make a preliminary evaluation of a project of 8 WTG located in Nulvi, Sardegna.

This report evaluates the layout authorized. In the evaluation we considered the following scenarios:

Scenario	Turbine Type	Number of WTGs	Capacity (MW)	Observation
5	SG155 6.0MW @102.5m	8	48.0	

The main risks and uncertainties in this analysis include the following:

- The absence of measured data from a metmast, which highly affect the uncertainty.
- No turbine suitability studies have been supplied to EDPR, neither wind data.
- No grid curtailment or curtailments due to noise, birds, bats, etc. have been considered for this WF.

2. References

DR01	TPO-EA-A.05	Wind Energy assessment general procedure
DR02	TPO-EA-A.06	Wind flow and wind modelling extrapolation
DR03	TPO-EA-A.07	Long term & vertical wind data extrapolation
DR04	TPO-EA-A.08	Calculation of Uncertainty and variability

3. Results

The following table summarizes the estimated long-term net production of the project:

Project	
Analysis ID	TCRP-ITA_0391ITAG00_EAWR-TCRP-00146_005
Layout ID	TCRP-ITAEAWR-LC-00142_002
Appian Scenario ID	5973
Turbine Scenario	8 x Siemens Gamesa SG155 - 6.0 [48.0 MW] @ 102.5m
Turbine Model	SG155
Hub Height	102.5
Turbine Rated Power (MW)	6.0
Number of Turbines	8
Capacity (MW)	48.0
Adjusted Gross AEP (GWh)	124.40
Adjusted Gross Capacity Factor	29.57%
Adjusted Gross Eq. Hours	2592
Availability WTG	98.11%
Availability BoP	99.80%
Curtailement	100.00%
Electrical Losses	97.00%
Special Climatic Conditions	99.00%
TI Correction	99.00%
Stat. Correction Factor	96.00%
Wind Sector Management	100.00%
LHH	99.33%
Wake & Array Losses	95.79%
Total Net Adjustments	85.03%
Net AEP (GWh)	105.78
Net Capacity Factor	25.14%
Net Equivalent Hours	2204
Temporal Scope	LT
Total	18.0%
P99	1281
P95	1551
P90	1696
P75	1936
P65	2051
P55	2154
P50	2204
P45	2254
P35	2357
P25	2472
P10	2712
P05	2857
P01	3127

4. Action Items

1. There is no site suitability study from the manufacturer. No WSM losses have been considered.
2. No grid curtailment or curtailments due to noise, birds, bats, etc. have been considered for this WF.

5. Tower Information

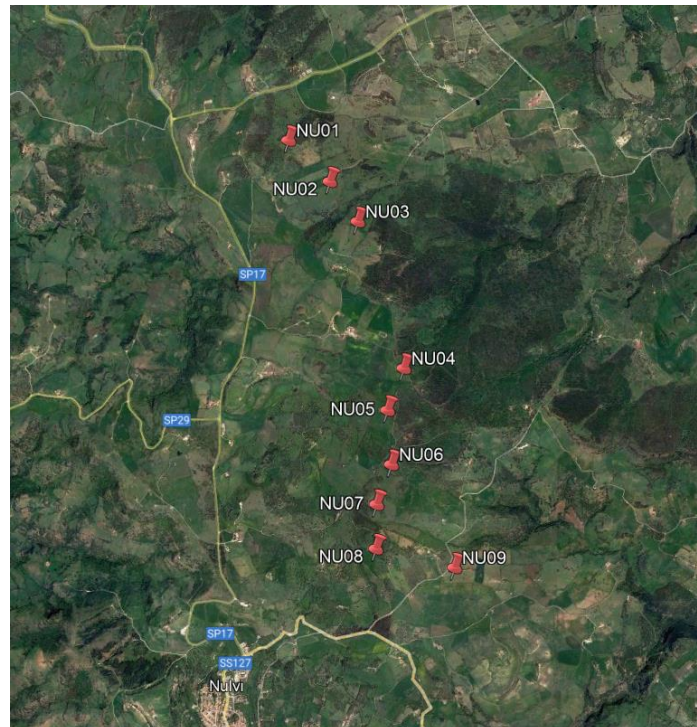
N/A

6. Layout analysis

The layout is composed of 8 wind turbines, which coordinates are as follows:

UTM WGS84 Zone:33		
WTG	X	Y
NU01	478973	4521223
NU02	479423	4520772
NU03	480233	4518726
NU04	480055	4518271
NU05	480096	4517684
NU06	479934	4517250
NU07	479921	4516759
NU08	480782	4516546

The layout configuration is shown in the image below:



7. Turbine information

Turbine	Document of reference
SG155 6.0MW 1.16 kg/m3	D2360992/002

8. Revision Tracking

Rev.001 considered the following scenarios:

Scenario	Turbine Type	Number of WTGs	Capacity (MW)
1	V162 5.6MW @119m	12	67.2

Rev.002 considered the following scenarios:

Scenario	Turbine Type	Number of WTGs	Capacity (MW)
2	SG170 6.0MW @115m	10	60.0

Rev.003 considered the following scenarios:

Scenario	Turbine Type	Number of WTGs	Capacity (MW)
3	SG170 6.0MW @115m	15	90.0

Rev.003 considered the following scenarios:

Scenario	Turbine Type	Number of WTGs	Capacity (MW)
4	SG155 6.0MW @102m	9	54.0

Annex I: Estimated Third party P-values and uncertainty

N/A

Annex II: Operational Strategies

1. Bat Curtailment: N/A
2. Noise Curtailment: N/A

Annex III: Model inputs

Met data

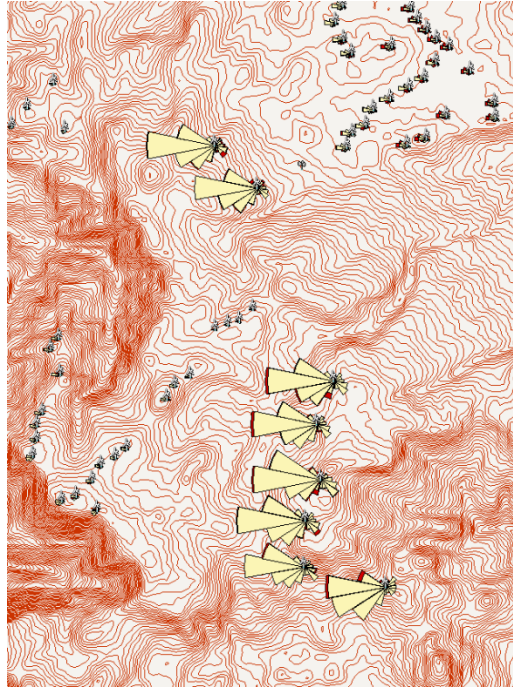
N/A

Long Term

The production has been calculated using Vortex data, thus LT correction is not required.

Horizontal Extrapolation

Meteodyn has been used to horizontal extrapolation.



Neighboring wind farms

The existing wind farm in the nearby are showed here below:

