



BREAK THE GRIDLOCK! WIRE FOR GROWTH!



21 - 23 OCTOBER 2025
8:00 am – 5:00 pm



CAPE TOWN, SA
CTICC 2

2025 PRESENTATION

Automated GIS Workflows for Smarter Renewable Energy Site Identification

Rossouw Treurnich

22 October 2025





SPEAKER **OVERVIEW**



Rossouw Treurnich **Junior Integration Support Technician**

“My goal is to move the renewable energy sector forward; one turbine and one innovation at a time.”



Scatec provides renewable energy solutions in emerging markets

- Over 6GW of renewable capacity in operation and under construction

Scatec in brief



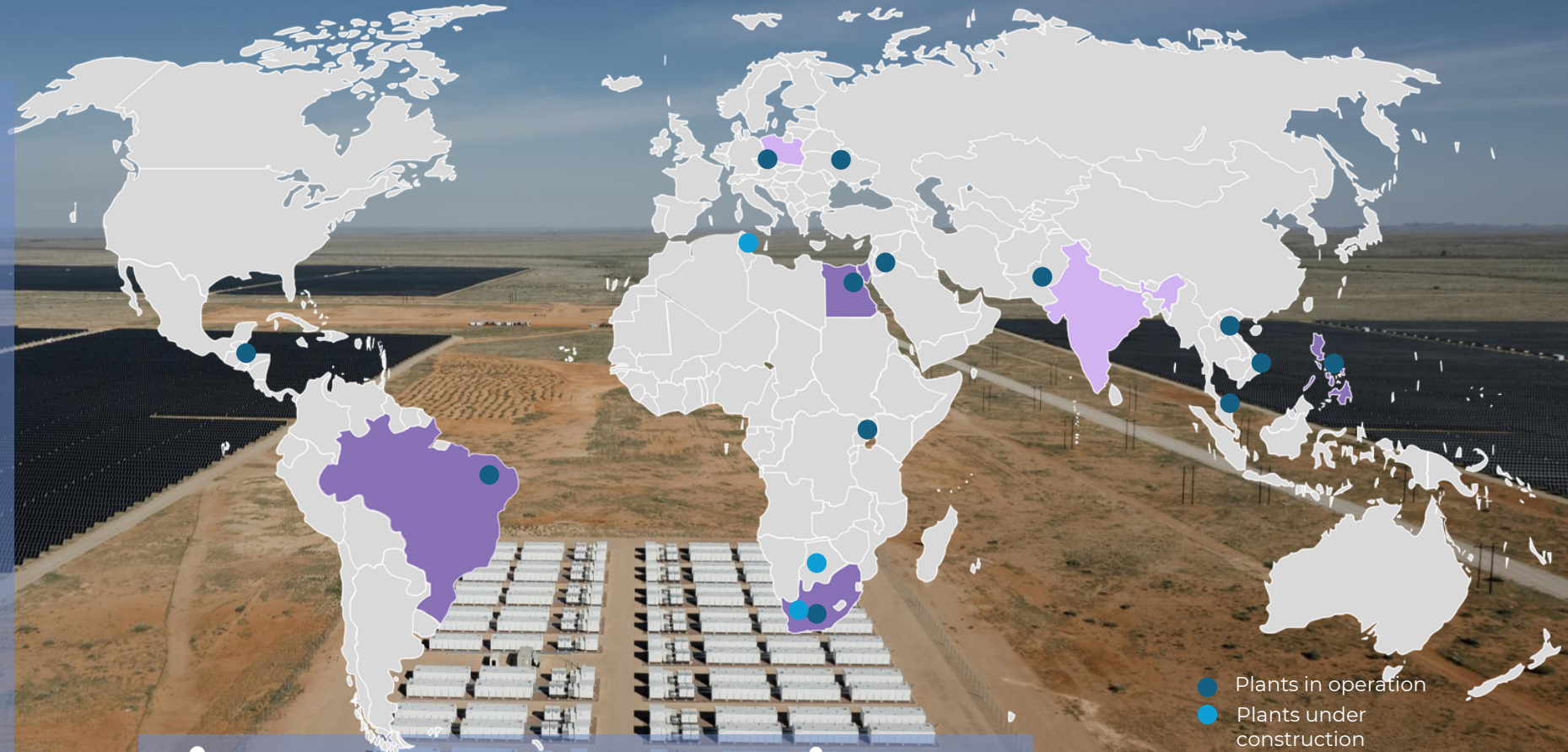
Develop, build, own and operate renewable energy



Over 6 GW in operation and under construction



More than 700 employees in 21 countries



4,518 MW



1,174 MW

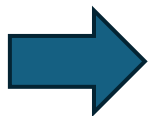


508 MW

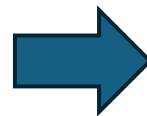


Wind siting and analysis (WSAT)

Measurement
campaign design



Wind Resource
Assessments



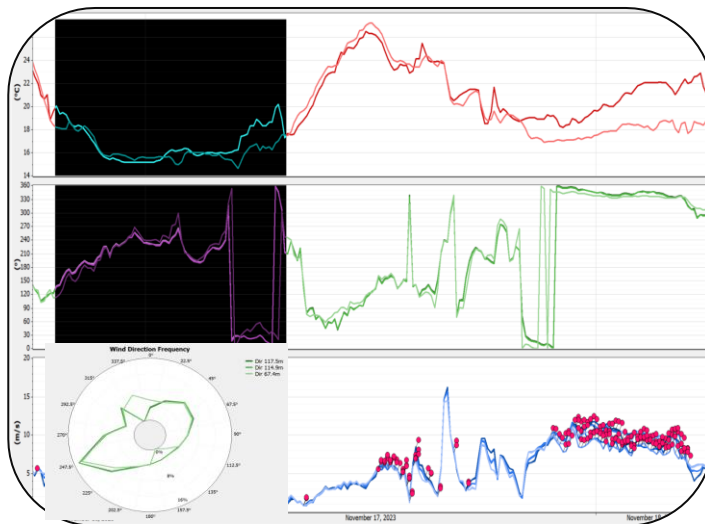
Energy Yield
Analysis



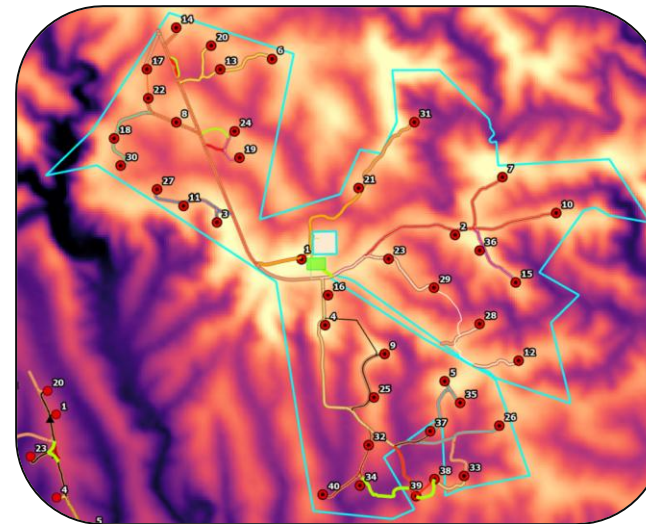
Technology
Selection



- Mast/LiDAR Siting
- Monitoring
- Maintenance



- Data validation
- Uncertainty assessment
- Resource characterization



- Wind Farm Modeling
- Optimization
- Electrical Network Design



- Technical Due Diligence
- Turbine Suitability
- Technical optimization



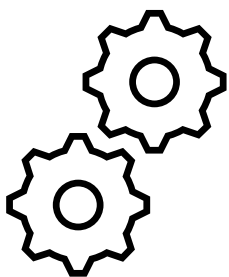
PRESENTATION **OVERVIEW**

- 01** • Purpose
- 02** • Data Inputs
- 03** • Suitability Modeling
- 04** • Tool Operation
- 05** • Outputs





The story behind the tool's creation



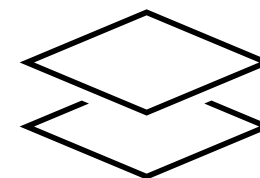
Why the Tool Was Developed

- Identifying viable greenfield sites was once a slow, manual process. It required constant coordination across Civil engineering, Environmental & Social team and the Solutions team – consuming valuable time and resources.
- To overcome this**, the tool was developed, designed to streamline and accelerate site screening, expanding our BD capabilities in greenfields.



What the Tool Does

- The tool applies function-specific sensitivity analyses and expert methodologies from across teams to automatically screen and rank potential sites.
- It enables us to** : Evaluate vast geographical areas efficiently
- Identify environmental, technical and social constraints early
- Deliver consistent, data-driven assessments without heavy cross function input



How It Works

- Input:** Geospatial datasets + predefined screening criteria
- Process:** Automated analysis and ranking of potential sites
- Output:** Fast, Standardised and objective assessments for project suitability



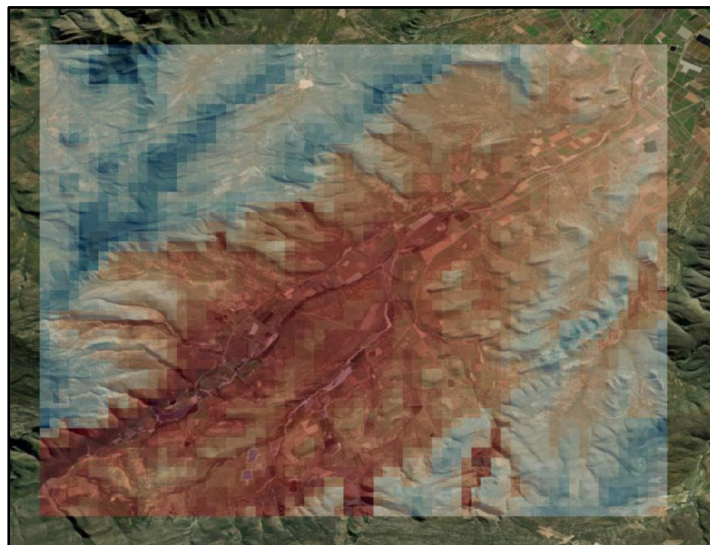
Impact Since Implementation

- 100+ sites screened to date
- Multiple sites advanced to development and financing stages
- Early risk detection saving time and resources
- Team now focuses on high value analysis and project advancement



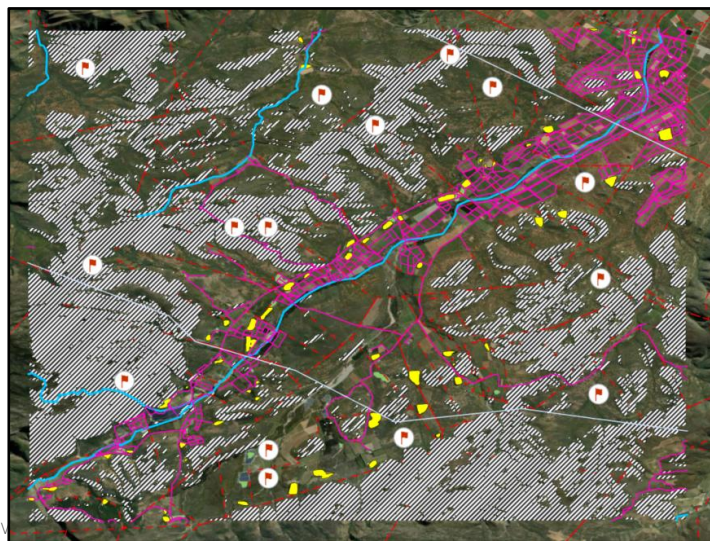


Data Inputs



Raster Data

Spatial data represented as a grid of regularly sized cells where each pixel contains a value that corresponds to information about a specific geographic location



Vector Data

Represents real-world geographic entities as features, which are digital objects with both spatial and descriptive attribute data

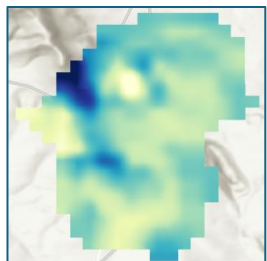
Category	Sensitivity
Power	Sub station network
	Transmission and distribution lines
	Existing IPP Infrastructure
Climate	Wind Speed Advanced
	Irradiation (GHI, DNI)
	Capacity Factor
	Lightning
Topographical	Power Density
	Elevation
Infrastructure	Landuse
	Noise receptors, Primary/Secondary roads, railways etc.
Geology	Seismic
	Ground type
Hydro	Waterlines
	Waterbodies
	Wetlands
Heritage	Heritage
Environmental	Marine protected areas
	Critical biodiversity areas
	Protected areas
Vegetation	Important bird areas
	Vegetation map
Resources	Special equipment
Municipal	Cadastrals
	Civil Aviation



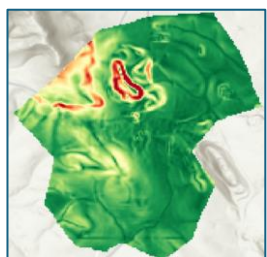


Suitability Modeling

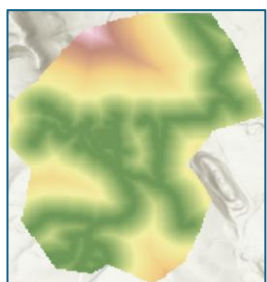
Raster Preparation



Wind Speed

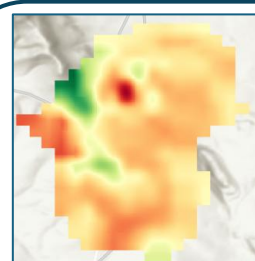


Slope



Road Network

Raster Transformation



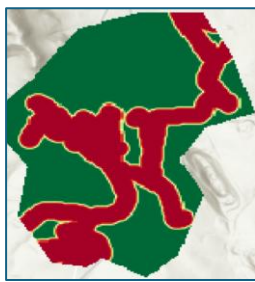
40%

+



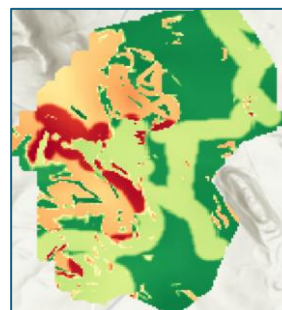
35%

+



25%

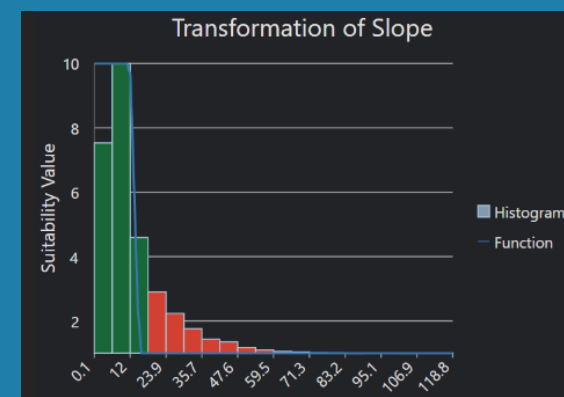
Weighted Suitability Model



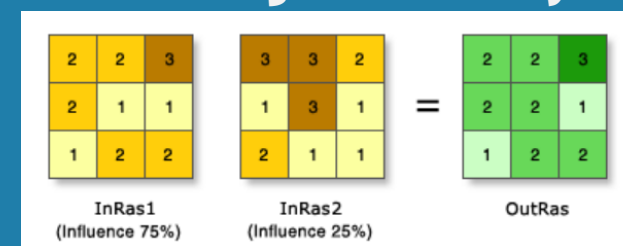
1. Raster Preparation

Features are rasterized, reprojected, clipped and resampled to prepare for transformation

2. Raster transformation



3. Weighted overlay

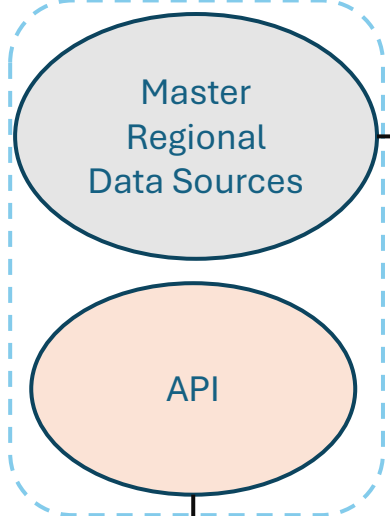


Rasters are multiplied by their influence, and results are added together in the output

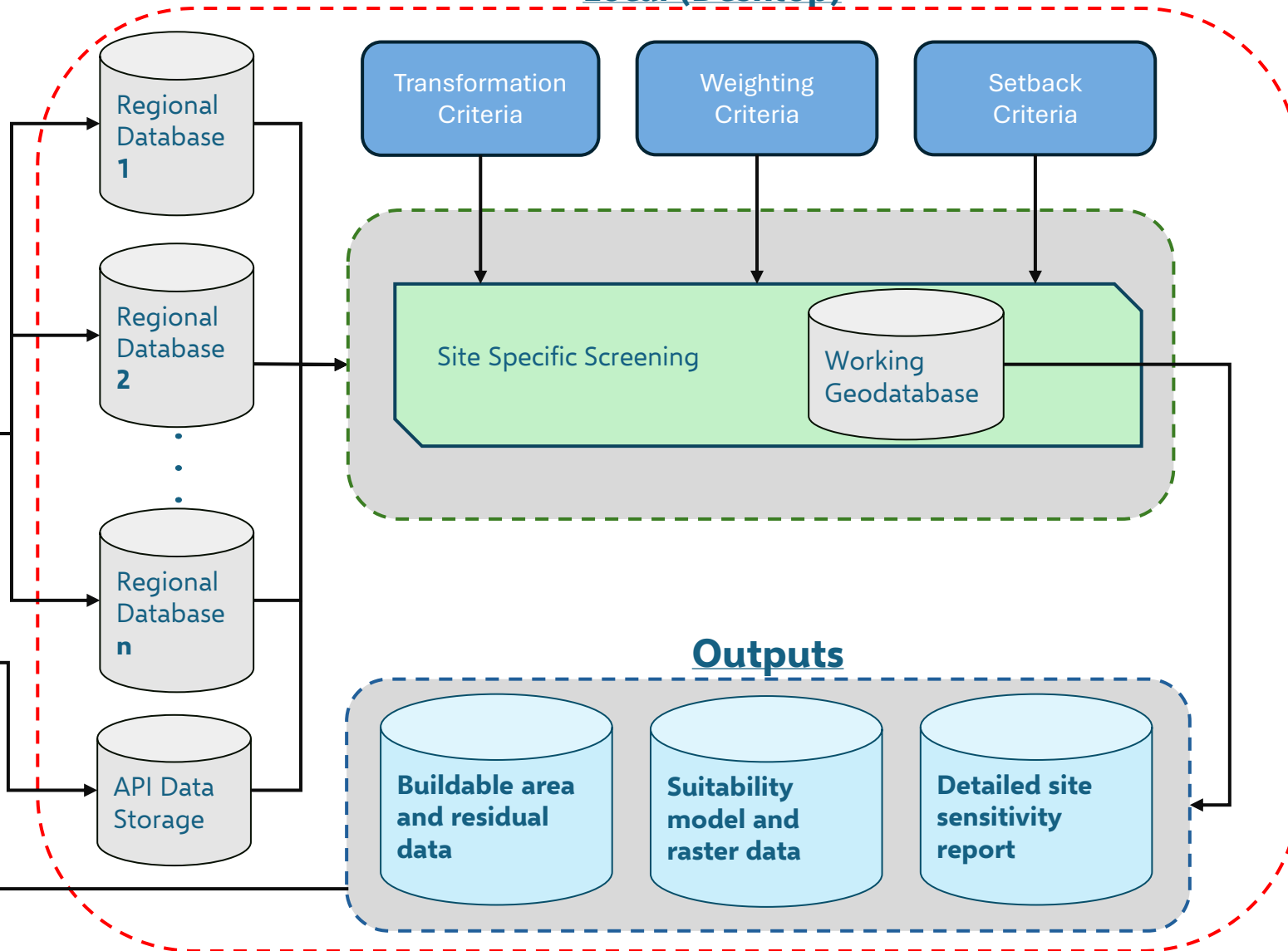
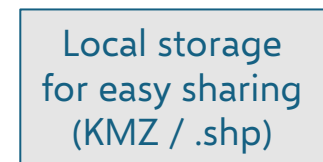
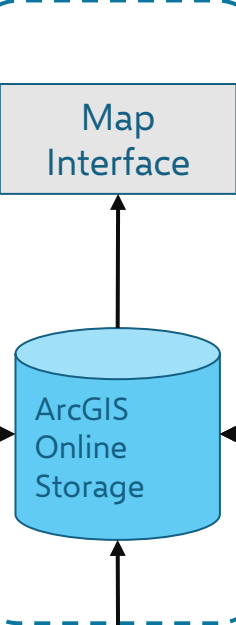


Tool operation

External Data Source



Cloud Based





Outputs

Project Information

Scatec

Project Name
Project Code

Piketberg
SP001

Country
Date:
Originator:
Technology
Coordinates:

Sub Saharan Africa
1/30/24 6:37
Rossouw Treurnich
PV
18.7741582 -32.962401

Project Summary

Systems Sensitivities

Direct Normal Irradiation (kwh/m ²)	505.25
Potential PV electricity production (Kwh/Kwp)	1993.15
Closest Sub Station (km)	Aurora 47.49

Civil Sensitivities

Total Area (ha) 2892.41

slope (ha)	Slope 0-5%	Slope 5-10%	Slope 10-15%
	680.14	1212.28	396.28

Landuse (ha)	Water	Trees	Crop Land	Built Area	Bare Ground	Rangeland
	20.29	27.66	2132.28	80.93	276.00	416.36

Geology Granophytic quartz gabbroPhyllitic shale, greywacke, limestone, areniteQuartz schist, mica schistPhyllitic shale, greywacke, subordinate limestone

Environmental Sensitivities

Protected Areas	SITE_NAME	SITE_TYPE	Distance_to_site_Km
	Mountshoeke	Protected Environment	17.32

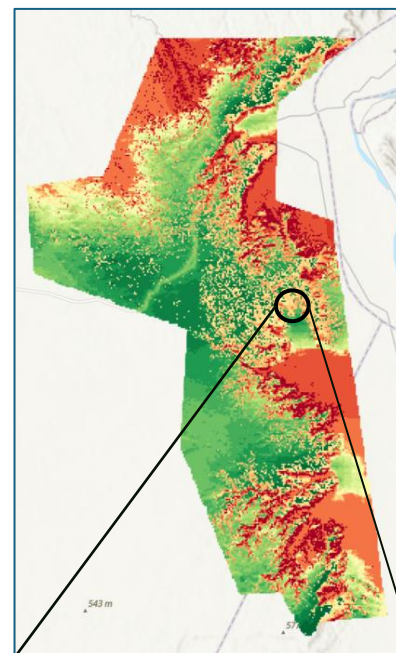
Vegetation	Biome_ID	Biome	Bioregion	Name
	4	Fynbos	West Coast	Swartland Shale Renosterveld
	4	Fynbos	West Coast	Swartland Silcrete Renosterveld

Business Developemnt

Aerodromes	AIRFIELD	TYPE CODE	SUB TYPE	Status	Distance_to_site_Km
	Die Brug	Aerodrome	Civil	Unlicensed	0.00
	Misverstand	Aerodrome	Civil	Unlicensed	8.07
	Tarr X Strip	Aerodrome	Civil	Unlicensed	12.22

Existing IPP Projects

No Existing IPP Project within 15km from Piketberg



Final_Suitability_Score	8.255717
Landuse	32232.27
Landuse_Suitability_score	8.19582
Road_network	1515.904
Road_network_Suitability_Score	8.574658
Slope	4.277984
Slope_Suitability_Score	10
Windspeed_100m	9.199352
Windspeed_100m_Suitability_Score	8.843547

Site report

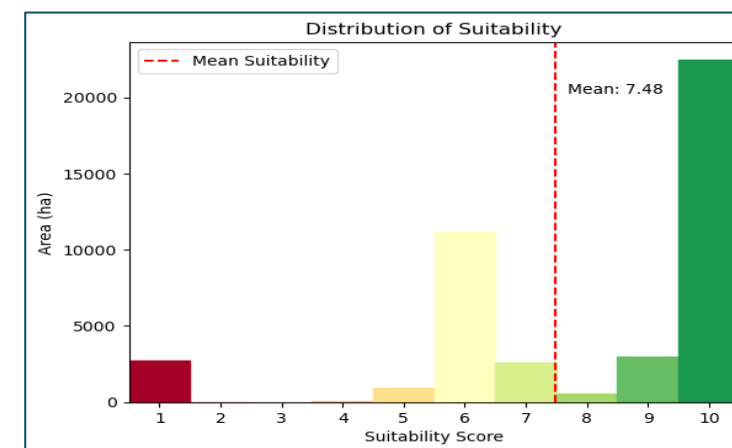
Granular view on each sensitivity with statistics

Feature/Raster/Buildable data KMZ file:

KMZ file containing sensitivity data for further analysis where necessary

Suitability Model

Score for the site based on an existing prefeasibility matrix



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THANK YOU FOR LISTENING!

CONTACT DETAILS

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