Scoping and Environmental Impact Assessment (S&EIA) Process for the Proposed Development of Windy Plains Wind Energy Facility and associated infrastructure, near Beaufort West, Western Cape Province

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

October 2025

Prepared for:
Genesis Eco-Energy Developments (Pty) Ltd

Prepared by:
Council for Scientific and Industrial Research (CSIR)

CSIR
Touching lives through innovation

genesis eco-energy DEVELOPMENTS

Scoping and Environmental Impact Assessment (S&EIA) Process for the Proposed Development of Windy Plains Wind Energy Facility and associated infrastructure, near Beaufort West, Western Cape Province

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PART A: MAIN REPORT

CSIR
Touching lives through innovation

SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT

for the

Proposed Development of Windy Plains Wind Energy Facility and associated infrastructure, near Beaufort West, Western Cape Province

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

October 2025

Prepared for:
Genesis Eco-Energy Developments (Pty) Ltd and Genesis Windy Plains Wind Farm (Pty) Ltd

Prepared by:
Council for Scientific and Industrial Research (CSIR)

P. O. Box 320, Stellenbosch, 7599
Tel: 021 888 2400

Lead Authors:
Paul Lochner, Helen Antonopoulos, Rohaida Abed, Suvasha Ramcharan, Kimara Moodley, Sonto Mkize (CSIR)

Specialists:
Johann Lanz; David Lakey; Corné Niemandt; Toni Belcher; Albert Froneman; Lourens du Plessis; Tosca de Villiers; John Gribble; Elize Butler; Sue Reuther; Duncan Keal; Athol Schwarz; Debbie Mitchell; Louis Jonk; Stephen Burton; Dr Owen Davies; Dr Brett Williams; and Jason Hutten

Mapping:
Dhiveshni Moodley (CSIR)

Formatting and Desktop Publishing:
Magdel van der Merwe (DTP Solutions)

REPORT DETAILS

Title:	Scoping and Environmental Impact Assessment (S&EIA) Process for the Proposed Development of Windy Plains Wind Energy Facility and associated infrastructure, near Beaufort West, Western Cape Province: DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Purpose of this report:	The purpose of this Draft EIA Report is to: ▪ Present the details of and the need for the proposed project; ▪ Describe the affected environment at a sufficient level of detail based on specialist input to facilitate informed decision-making; ▪ Provide an overview of the EIA Process that has been followed, including public consultation; ▪ Provide an overview of the potential positive and negative impacts of the proposed project on the environment; ▪ Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the proposed project; and ▪ Provide an Environmental Management Programme (EMPr) for the relevant phases of the project. The Draft EIA Report is currently being released to all Interested and/or Affected Parties (I&APs), Organs of State and relevant stakeholders for a 30-day review period. All comments submitted during the 30-day review period will be incorporated and responded to in the Comments and Responses Report, which will be included as an appendix to the Final EIA Report, and addressed, as applicable and where relevant, in the Final EIA Report. The Final EIA Report will then be submitted to the National Department of Forestry, Fisheries and the Environment (DFFE) for decision-making.
Prepared for:	Genesis Eco-Energy Developments (Pty) Ltd and Genesis Windy Plains Wind Farm (Pty) Ltd
Prepared by:	CSIR:
	P. O. Box 320, Stellenbosch, 7599 Tel: 021 888 2400 Email: ems@csir.co.za
Lead Authors:	Paul Lochner, Helen Antonopoulos, Rohaida Abed, Suvasha Ramcharan, Kimara Moodley, Sonto Mkize (CSIR)
Mapping:	Dhiveshni Moodley (CSIR)
Specialists:	Johann Lanz; David Lakey; Corné Niemandt; Toni Belcher; Albert Froneman; Lourens du Plessis; Tosca de Villiers; John Gribble; Elize Butler; Sue Reuther; Duncan Keal; Athol Schwarz; Debbie Mitchell; Louis Jonk; Stephen Burton; Dr Owen Davies; Dr Brett Williams; and Jason Hutten
Formatting and Desktop Publishing:	Magdel van der Merwe, DTP Solutions
Date:	October 2025
DFFE Reference No:	New Reference Number to be issued (Original Reference Number: 14/12/16/3/3/2/2424)
To be cited as:	CSIR, 2025. Scoping and Environmental Impact Assessment (S&EIA) Process for the Proposed Development of Windy Plains Wind Energy Facility and associated infrastructure, near Beaufort West, Western Cape Province. Draft Environmental Impact Assessment Report. CSIR Report Number: CSIR/SPLS/SE/ER/2025/0018/B+

CONTENTS

ENVIRONMENTAL IMPACT ASSESSMENT REPORT:
Scoping and Environmental Impact Assessment (S&EIA) Process for the Proposed Development of Windy Plains Wind Energy Facility and associated infrastructure, near Beaufort West, Western Cape Province

EXECUTIVE SUMMARY

October 2025

Prepared for:
Genesis Eco-Energy Developments (Pty) Ltd

Prepared by:
Council for Scientific and Industrial Research (CSIR)

CSIR
Touching lives through innovation

EXECUTIVE SUMMARY

CONTENTS

TABLES

1. INTRODUCTION AND PROJECT LOCALITY

Genesis Eco-Energy Developments (Pty) Ltd (hereafter referred to as "GEED" or the "Project Developer") intends to develop a Renewable Energy Cluster consisting of two Solar Energy Facilities (SEFs) and various Wind Energy Facilities (WEFs), located near Beaufort West within the Beaufort West Local Municipality and the Central Karoo District Municipality in the Western Cape Province. The Renewable Energy Cluster comprises the Northern, Middle and Southern Clusters (Figure A and Table A). One of the WEFs within the Northern Cluster, namely the Eland WEF (which is the subject of a separate assessment), also extends into the Karoo Hoogland and Ubuntu Local Municipalities in the Northern Cape Province.

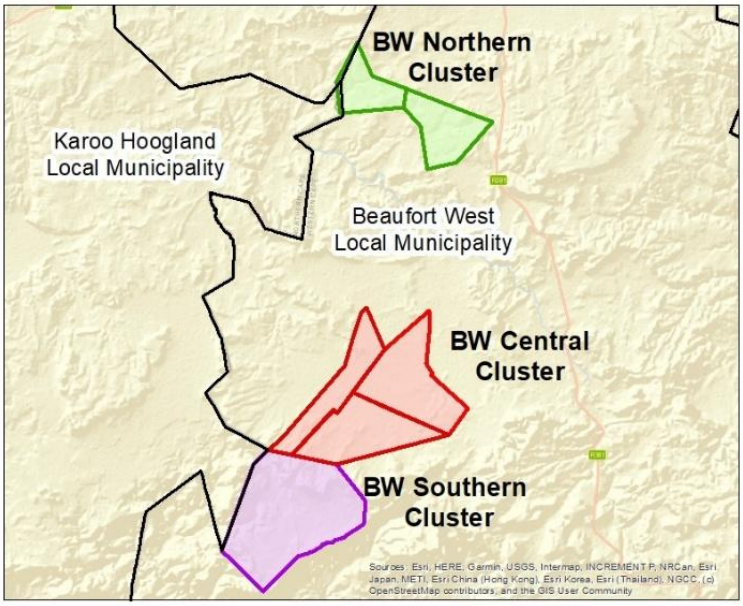

Figure A. GEED Renewable Energy Cluster, located predominantly in the Western Cape near Beaufort West.

The three clusters together with their respective project and applicant names, as well as the status of the relevant Environmental Assessment process, are denoted in Table A.

Table A. GEED Renewable Energy Cluster Proposed Projects, Applicants and Project Status

CLUSTER	PROJECT	APPLICANT	ENVIRONMENTAL ASSESSMENT PROJECT STATUS
Northern	Eland WEF, 132 kV EGI, BESS and associated infrastructure	Genesis Eland Wind Farm (Pty) Ltd	EIA currently underway
	Windy Plains WEF, BESS and associated infrastructure	Genesis Windy Plains Wind Farm (Pty) Ltd	EIA currently underway
Middle	Aloe WEF, 132 kV EGI, BESS and associated infrastructure	Genesis Aloe Wind Farm (Pty) Ltd	Pending (Pre-Application)
	Elegia WEF, 132 kV EGI, BESS and associated infrastructure	Genesis Elegia Wind Farm (Pty) Ltd	Pending (Pre-Application)
	Gazania WEF, 132 kV EGI, BESS and associated infrastructure	Genesis Gazania Wind Farm (Pty) Ltd	Pending (Pre-Application)
Southern	Beau Valley WEF, BESS and associated infrastructure	Genesis Beau Valley Wind Farm (Pty) Ltd	Pending (Pre-Application)
	Beau Valley SEF, 132 kV EGI, BESS and associated infrastructure	Genesis Beau Valley Solar Farm (Pty) Ltd	Authorised in December 2023
	DBF South WEF, 132 kV EGI, BESS and associated infrastructure	Genesis DBF South Wind Farm (Pty) Ltd	Will no longer be pursued
	DBF South SEF, 132 kV EGI, BESS and associated infrastructure	Genesis DBF South Solar Farm (Pty) Ltd	Authorised in November 2023
Supporting EGI	400 kV External Overhead Transmission Power Line and a 132/400 kV Collector Substation and Associated Infrastructure	Genesis Eco-Energy Developments (Pty) Ltd	Pending (Pre-Application)
	132 kV Windy Plains WEF External Overhead Transmission Power Line	Genesis Eco-Energy Developments (Pty) Ltd	Pending (Pre-Application)
	132 kV Beau Valley WEF Internal Overhead Transmission Power Line	Genesis Eco-Energy Developments (Pty) Ltd	Pending (Pre-Application)

Each of the SEF and WEF projects forming part of the GEED Renewable Energy Cluster require its own, separate Environmental Authorisation (EA) Application, and will undergo a separate Environmental Assessment process. As noted in Table A, the National Department of Forestry, Fisheries and the Environment (DFFE) granted EAs for the proposed Beau Valley SEF and DBF South SEF in 2023.

This Environmental Impact Assessment (EIA) Report only addresses the proposed **Genesis Windy Plains WEF** (hereafter referred to as the "**Windy Plains WEF**" or the "proposed project").

Note that the EIA Process for the proposed Eland WEF is being undertaken concurrently with that of the Windy Plains WEF, as both the WEFs form part of the Northern Cluster indicated in Figure A and Table A. The Eland WEF is the subject of a separate EIA Report.

The proposed project is not located within any of the Renewable Energy Development Zones (REDZs) that were gazetted in GN 114 on 16 February 2018; and GN 144 on 26 February 2021. The proposed project is also not located within any of the Strategic Transmission Corridors that

were gazetted in GN 113 on 16 February 2018; and GN 1637 on 24 December 2021. Refer to Figure B for a locality map of the proposed Eland and Windy Plains WEFs.

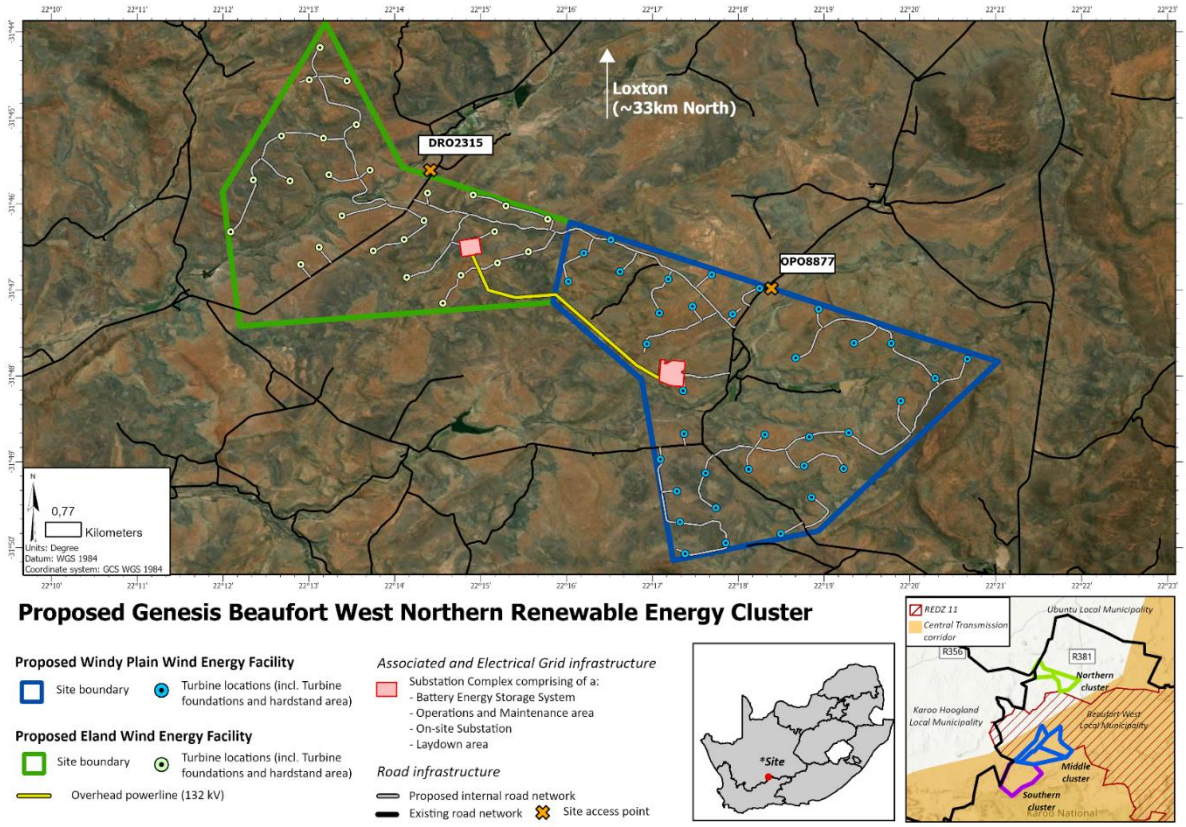

Figure B. Locality map of the GEED Northern Renewable Energy Cluster near Beaufort West in the Western and Northern Cape.

2. SUMMARY OF THE EA PROCESS TO DATE

The Final Scoping Reports for the Windy Plains and Eland WEFs (respective original DFFE Reference Numbers: 14/12/16/3/3/2/2424 and 14/12/16/3/3/2/2425) were accepted by the DFFE on 27 November 2023. The submission date of the Final EIA Reports for these WEFs was 08 April 2024. Based on various factors, the Final EIA Reports were not submitted by this date and therefore the original applications lapsed.

Regulation 21 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) EIA Regulations (as amended), deals with the submission of Final Scoping Reports to the Competent Authority for consideration (i.e. acceptance or refusal). Specifically, Regulation 21 (2) of the 2014 NEMA EIA Regulations (as amended) states that subject to Regulation 46 and Regulation 21 (2) [(a) to (d)], and if the findings of the scoping report are still valid and the environmental context has not changed, the submission of a scoping report as contemplated in Regulation 21 (1) does not need to be complied with. In this regard, Regulation 46 is not relevant because the EA Applications for the Eland and Windy Plains WEFs were not refused, and no associated appeals were lodged. The applications only progressed until submission of the Final

Scoping Reports which were accepted by the DFFE. Regulation 21 (2) (a) to (d) of the 2014 NEMA EIA Regulations (as amended) are complied with, as described in detail in Chapter 1 of the EIA Report and the relevant specialist reports in Appendix G. As such, the Draft EIA Phase has been commenced with (without resubmitting the Draft and Final Scoping Reports), as also confirmed with the DFFE in September 2025.

It is important to note that a notification was sent via email on 16 September 2025 in terms of Regulation 21 (2) (b) of the 2014 NEMA EIA Regulations (as amended) to notify registered stakeholders of the intended resubmission of the applications for EA for the proposed Eland and Windy Plains WEFs, and the upcoming release of the Draft EIA Reports. A copy of this correspondence is included in Appendix E Part 3 of the EIA Report.

3. COMPETENT AUTHORITY AND APPLICANT

The Competent Authority for the proposed project is the DFFE, and the Project Applicant is Genesis Windy Plains Wind Farm (Pty) Ltd.

4. NEED FOR THE EIA AND APPROACH

The proposed project triggers the need for an EA in terms of the 2014 NEMA EIA Regulations (as amended) published in GN R326, R327, R325 and R324 and further amended on 11 June 2021 in GN 517; and on 3 March 2022 in GN 1816. In terms of the 2014 NEMA EIA Regulations (as amended), a full Scoping and EIA Process is required for the proposed project.

Chapter 4 of the EIA Report contains a detailed list of activities, which are triggered by the proposed project and the various project components, and thus forms part of this Scoping and EIA Process. Listed below is the key listed activity that is triggered by the proposed project (Table B).

Table B. Key Listed Activity for the Windy Plains WEF. Note that the remaining Listed Activities are included in Chapter 4 of the EIA Report.

Project	Listing Notice, Listed Activity and Description
Windy Plains WEF	**GN R325 (Listing Notice 2), Activity 1:** The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facility or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure

The purpose of the Scoping and EIA Process is to identify, assess and report on any potential impacts the proposed project, if implemented, may have on the receiving environment. The Scoping and EIA therefore needs to show the Competent Authority and the Project Applicant what the consequences of their choices will be in terms of impacts on the biophysical and socio-economic environment and how such impacts can be, as far as possible, enhanced or mitigated and managed as the case may be.

5. PUBLIC PARTICIPATION PROCESS AND CURRENT EIA STAGE (I.E. RELEASE OF DRAFT EIA REPORT FOR 30-DAY COMMENT PERIOD)

The Public Participation Process (PPP) for this Scoping and EIA Process has been undertaken in compliance with Chapter 6 of the 2014 NEMA EIA Regulations (as amended). An integrated PPP is being undertaken for the proposed Eland and Windy Plains WEFs. The Draft Scoping Reports were made available to all Interested and/or Affected Parties (I&APs), Organs of State and relevant stakeholders for a 30-day comment period in September 2023 to October 2023, and the Final Scoping Reports were submitted to the DFFE in October 2023, and thereafter accepted in November 2023.

The Draft EIA Reports are currently being made available to all I&APs, Organs of State and relevant stakeholders for a 30-day review period. The Draft EIA Reports will be uploaded to the project website (i.e., https://www.csir.co.za/environmental-impact-assessment) and Google Drive for potential and registered I&APs to access it. Written notification of the availability of the Draft EIA Reports for comment will be sent to all stakeholders included on the project database via email, where email addresses were available. Various reminder emails will also be sent to the stakeholders during the comment period to seek comments.

Copies of all written comments received during the 30-day review period on the Draft EIA Report will be included as an appendix to the Final EIA Report. The comments will also be incorporated and responded to into a detailed Comments and Responses Report, which will also be appended to the Final EIA Report, and addressed, as applicable and where relevant, in the Final EIA Report. The Final EIA Report will thereafter be submitted to the DFFE, in accordance with Regulation 23 of the 2014 NEMA EIA Regulations (as amended), for decision-making.

6. PROJECT EIA TEAM

In accordance with Regulation 12 (1) of the 2014 NEMA EIA Regulations (as amended), the Council for Scientific and Industrial Research (CSIR) was appointed by the Project Developer to undertake the required Scoping and EIA Process. The project team and the relevant specialists are indicated in Table C below.

Table C. Project Team for the Scoping and EIA Process

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN
CSIR Environmental Management Services		
Paul Lochner *(Registered EAP (2019/745))*	CSIR	EAP, Technical Advisor and Quality Assurance
Rohaida Abed *(Pr.Sci.Nat. and Registered EAP (2021/4067))*	CSIR	Project Team Member
Helen Antonopoulos *(Cand.Sci.Nat.)*	CSIR	Project Manager
Dhiveshni Moodley *(Pr.Sci.Nat.)*	CSIR	GIS Specialist
Suvasha Ramcharan *(Cert.Sci.Nat.* and *Cand. EAP)*	CSIR	Project Officer
Sonto Mkize *(Cand. Planner)*	CSIR	Project Officer
Rinae Tsedu (*Cand. EAP)*	CSIR	Project Officer

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN
Kimara Moodley (*Cand. EAP)*	CSIR	Project Officer
Specialists		
Johann Lanz (*Pr.Sci.Nat.)* David Lakey	SoilZA	Agriculture Compliance Statement
Corné Niemandt[1] (*Pr.Sci.Nat.)*	Bios Diversitas Consultants	Terrestrial Biodiversity and Terrestrial Animal Species Impact Assessment and Terrestrial Plant Species Compliance Statement
Toni Belcher *(Pr.Sci.Nat.)*	Blue Science	Aquatic Biodiversity and Species Impact Assessment
Albert Froneman (*Pr.Sci.Nat.)*	AfriAvian Environmental	Avifauna Impact Assessment
Lourens du Plessis *(GPr GISc)* Tosca de Villiers *(SACLAP and EAPASA Registered)*	LOGIS NuLeaf Planning and Environmental (Pty) Ltd	Visual Impact Assessment
John Gribble (*ASAPA Registered*)	TerraMare Archaeology	Heritage Impact Assessment (Archaeology and Cultural Landscape)
Elize Butler	BANZAI Environmental	Palaeontology Impact Assessment
Sue Reuther Duncan Keal	SLR Consulting	Socio-Economic Impact Assessment
Athol Schwarz (*Pr. Tech.*)	Private	Traffic Impact Assessment
Debbie Mitchell *(Pr Eng)*	Ishecon cc	Battery Storage High Level Safety, Health and Environment Risk Assessment
Louis Jonk (*Pr.Sci.Nat.)*	GEOSS South Africa	Desktop Geotechnical Assessment
Stephen Burton (*Pr.Sci.Nat.)* Dr Owen Davies (*Pr.Sci.Nat.)*	ERM Consulting	Bat Species Impact Assessment
Dr Brett Williams Jason Hutten	Safetech	Noise Impact Assessment
Helen Antonopoulos (*Cand.Sci.Nat.)* Lizande Kellerman[2] *(Pr.Sci.Nat.)*	CSIR	Civil Aviation Site Sensitivity Verification
Helen Antonopoulos (*Cand.Sci.Nat.)* Lizande Kellerman[2] *(Pr.Sci.Nat.)*	CSIR	Defence Site Sensitivity Verification

The specialist assessments comply with Appendix 6 of the 2014 NEMA EIA Regulations (as amended), or the Assessment Protocols published in GN 320 on March 2020; or the Assessment Protocols published in GN 1150 on October 2020 (as amended in GN 3717; July 2023). However, the Battery Energy Storage System (BESS) High Level Safety, Health and Environment (SHE) Risk Assessment serves as a technical report, and the aforementioned legislation is thus not applicable.

7. STUDY AREA

The study area or preferred site for the proposed WEF and associated infrastructure covers approximately 2 961 hectares (ha), which includes the full extent of the affected farm property. The farm property is listed in Table D.

[1] Based on resource availability, a new Terrestrial Biodiversity and Species specialist was appointed in May 2025 for the Eland WEF and Windy Plains WEF.
[2] This staff member resigned from the CSIR at the end of July 2025.

Table D. Farm portion and SG code for the Study Area

FARM PORTION	21-DIGIT SURVEYOR GENERAL CODE	AREA (ha)
WEF, SUBSTATION COMPLEX, AND INTERNAL ROADS		
Drooge Onrust Farm RE/22	C00900000000002200000	2 961

As part of the Scoping and EIA Process, the full extent of the study area was assessed by the specialists in order to identify environmental sensitivities and no-go areas. The preferred site serves as the study area for this Scoping and EIA Process. Therefore, the terms “site” and “study area” are used synonymously in the EIA Report.

8. PROJECT DESCRIPTION

A summary of the key components of the proposed project and technical information is described in Table E below.

Table E. Summary of the components and associated infrastructure of the Windy Plains WEF[3]

COMPONENT	DESCRIPTION
Wind Turbines	
Type of Technology	▪ Onshore Wind Turbine Generators (WTGs)
Turbine Count	▪ Up to 35
Capacity per WTG	▪ Up to 10 MW
Facility Generation Capacity	▪ Up to 350 MW
Hub Height	▪ Up to 200 m
Tower	▪ Conical shaped either constructed of full steel, full concrete, or hybrid
Number of blades per WTG	▪ 3
Blade Length	▪ Up to 100 m
Rotor (Blade) Diameter	▪ 200 m (up to 100 m blade / radius)
Rotor Top Tip Height	▪ Up to 300 m (maximum based on 200 m hub + 100 m blade length)
Foundation Diameter per WTG	▪ Up to 64 m
Foundation Area per WTG	▪ Up to 0.32 ha
Hardstand/ Laydown per WTG	▪ Up to 2.22 ha ▪ The length and width of the hardstand / laydown area changes per WTG depending on the soil and topographic properties, e.g., 206 m x 108 m or 190 m x 117 m etc.

[3] The proposed project specifications were amended from the Scoping Phase to the EIA Phase. The main updates to the project specifications include:
- Turbine Count changed from 39 WTGs in the Scoping Phase to up to 35 WTGs in the EIA Phase.
- Facility Generation Capacity changed from 390 MW in the Scoping Phase to up to 350 MW in the EIA Phase.

COMPONENT	DESCRIPTION
Disturbed Area per WTG (Foundation + Hardstand)	▪ Up to 2.54 ha
Building Infrastructure and Substation	
Auxiliary Buildings/ Operational and Maintenance (O&M) Building	▪ Type: These include, but are not limited to, O&M building / centre, site office, workshop, staff lockers, bathrooms / ablutions, warehouses, guard houses, etc. ▪ Cumulative Footprint: Approximately up to 0.25 ha / 2500 m^2 ▪ Height: Up to 10 m
Inverter/Transformer Stations	Several transformers will be installed with the following specifications: ▪ Height: Approximately 3 m ▪ Footprint: Approximately 220 m^2 each

On-site Substation and Switching Substation Complex	▪ Cumulative Footprint: ~23 ha in extent and includes:
	  ▪ 33/132kV Collector Substation and Switching Substation (~1 ha)
	  ▪ BESS (~4 ha)
	  ▪ O&M Buildings (~0.25 ha)
	  ▪ Laydown areas (~6.6 ha)
	▪ Height of the substation: Up to 10 m. However, the on-site substation will include switchgear portals up to 15 m and lightning masts up to 25 m in height.
	▪ Capacity of the substation: up to 132 kV
	▪ Fence: Galvanized palisade fencing to be used at the substations
	▪ Fence height: Up to 2.5 m

Associated Infrastructure	
Battery Energy Storage System (BESS)	▪ Preferred Technology: Lithium-Ion or Sodium-Ion (Solid state) ▪ Alternative Technology: Redox Flow ▪ Footprint: Up to 4 ha ▪ Height: Up to 10 m ▪ Capacity: Up to 1 200 MWh ▪ Fence: Galvanized palisade fencing ▪ Fence height: Up to 2.5 m
On-site medium voltage internal cables	▪ Placement: Underground, above ground or a combination of both pending technical constraints ▪ Capacity: 33 kV ▪ Depth of underground cables: Maximum depth of 3 m ▪ Safety: Danger tape will be placed at appropriate intervals above the cable to alert contractors or workers post-construction that buried electrical cable is located in the area they are excavating.

Access roads	▪ Existing roads will be used as far as practically achievable. The proposed project site can be accessed via the following roads:
	  ○ OP08875; and
	  ○ OP08877.
	▪ Refer to the Traffic Impact Assessment for additional information on the route options per project.
	▪ A separate Environmental Assessment Process will be undertaken should any road upgrades trigger listed activities in terms of the 2014 NEMA EIA Regulations (as amended).

Internal roads	▪ Internal roads: The proposed project will have a total internal service road network of up to approximately 50 km. Permanent roads will be up to 6 m wide and may require side drains on one or both sides. All roads may have underground cables running next to them. A 12 m wide road

COMPONENT	DESCRIPTION
	corridor may be temporarily impacted during construction and rehabilitated to 6 m wide after construction. Temporary clearing of up to 50 m may be required in areas where cut and fill may be required as well for the construction of the bell mouth road junction, turning circles, temporary passing lanes, side drains, and/or stormwater control measures. The network layout is designed to provide efficient access to all elements of the facility and effective accommodation of the anticipated internal traffic. ▪ Details: New internal service roads and storm water control measures will need to be established. The internal service roads will comprise of both existing and new roads. Existing unnamed roads will be used as far as possible and will be upgraded, expanded, and compacted. New roads will be constructed in the absence of existing roads. ▪ Width: Approximately 4 – 6 m
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Work area during the construction phase (i.e., laydown areas, site camp and temporary concrete batching plant)	▪ Temporary Laydown: Up to 6.6 ha. ▪ Temporary concrete batching plant: A temporary site camp establishment and concrete batching plants of ± 100 m x 100 m (1 ha).
Fencing	▪ The proposed built infrastructure on site will be secured via the installation of appropriate fencing for reasons such as security, livestock / wildlife safety, public protection and lawful requirements. Existing livestock or wildlife fencing on the affected farm portions may be erected or upgraded where deemed insufficiently secured, whereas permanent fencing will be required around the O&M area, substation hub, and BESS. Access points will be managed and monitored by an appointed security service provider. The type and height of fencing to be installed will be confirmed during the detailed design phase prior to construction. ▪ Fence height: Up to 3 m for wildlife fencing.
Grid Connection	▪ A separate Environmental Assessment Process will be undertaken once the grid connection and the 132 kV power line routing for the proposed project have been confirmed and hence does not form part of this current Scoping and EIA Process for the Windy Plains WEF.
Water Requirements	▪ Approximately 50 000 m^3 of water is estimated to be required per year for the construction phase. ▪ Approximately 3 500 m^3 of water is estimated to be required per year for the operational phase. ▪ Water requirements during the decommissioning phase are unknown at this stage. ▪ Potential water sources: Local municipality, third-party water supplier, existing boreholes, newly drilled boreholes on site or a combination of existing and newly drilled boreholes on site. ▪ Potential water supply methods: Trucked to site from an external source, bulk supply pipeline, or on-site borehole piped via a temporary HDPE pipe. ▪ A separate Environmental Assessment Process will be undertaken should the water supply method trigger listed activities in terms of the 2014 NEMA EIA Regulations (as amended). Additionally, GA or WULA will be undertaken post-EA in terms of the 1998 NWA.

COMPONENT	DESCRIPTION
Workforce	▪ Exact employment numbers may vary however the following estimates are provided: o Construction Phase: 300 – 400 employment opportunities, including low-skilled, semi-skilled, and skilled. o Operational Phase: 40 – 50 employment opportunities, including low-skilled, semi-skilled, and skilled.
Construction Period	▪ 24 to 30 months
Operational Period	▪ Once the commercial operation date is achieved, the proposed facility will generate electricity for 20 to 25 years.

9. SUMMARY OF IMPACT ASSESSMENT FINDINGS AND RECOMMENDED MANAGEMENT ACTIONS

Based on the detailed specialist assessments, various potential impacts have been identified. A summary of the **main impacts** identified is provided in Table F. Note that several mitigation measures have also been provided by the specialists, however only selected key measures are noted in the table below. In general, some of the mitigation measures of the most significant impacts (post-mitigation) have been included in the table below. The specialist studies included in Appendix G of the EIA Report, and the overall impact assessment in Chapter 6 of the EIA Report, contain all the detailed mitigation measures. The recommended mitigation measures have also been included in the Environmental Management Programmes (EMPrs) in Appendix H of the EIA Report.

Table F. Summary of Key Impacts that were identified and assessed during the EIA Phase as part of the Specialist Assessments, including key recommended mitigation measures

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix G.1: Agriculture Compliance Statement	**Negative Impacts:** **Construction, Operational and Decommissioning Phases:** • Loss of agricultural production potential due to exclusion of agriculture from land directly occupied by development infrastructure. **Construction and Decommissioning Phases:** • Loss of agricultural production potential due to soil degradation, which includes soil erosion and loss of topsoil. **Positive Impacts:** **Operational Phase:** • Increase in agricultural production potential due to increased financial security for farming operations through rental income generation during the operational phase of the WEF. • Increase in agricultural production potential through an improved road network, with associated storm water handling system. **Negative Cumulative Impacts:** • Operational Phase: Regional loss (including by degradation) of future agricultural production potential.	**Planning Phase:** ▪ Design an effective storm water management control system, which will prevent erosion, at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points, and it must prevent any potential down slope erosion. **Construction Phase:** ▪ Implement an effective storm water management control system (as specified in the design phase). ▪ Any excavations done during the construction phase, in areas that will be re-vegetated at the end of the construction phase, must separate the upper 20 cm of topsoil from the rest of the excavation spoils and store it in a separate stockpile. When the excavation is back-filled, the topsoil must be back-filled last, so that it is at the surface. ▪ Topsoil should only be stripped in areas that are excavated. ▪ Across most of the site, including construction laydown areas, it will be much more effective for rehabilitation to retain the topsoil in place. If levelling requires significant cutting, topsoil should be temporarily stockpiled and then re-spread after cutting, so that there is a covering of topsoil over the entire cut surface. **Operational Phase:** ▪ Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring. ▪ Facilitate re-vegetation of denuded areas throughout the site. **Decommissioning Phase:** ▪ Maintain, where possible, all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion. ▪ If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.
Appendix G.2: Terrestrial Biodiversity and Terrestrial Animal Species Assessment,	**Negative Impacts:** **Construction Phase:** • Loss of natural habitat and sensitive features, and fragmentation of Least Threatened Vegetation, Critical Biodiversity Area (CBA) 2, Ecological Support Area (ESA) 2	***Note: The significance of all identified impacts in the Terrestrial Biodiversity and Species Assessment is rated as low significance post-mitigation. Therefore, only some mitigation measures have been highlighted below for each phase.*** **Construction Phase:** ▪ Within High and Very High sensitivity areas including their buffer zones, turbines and other non-linear infrastructure such as the BESS and substation must be excluded. ▪ Micrositing should be considered for non-linear infrastructure located in CBAs, where applicable.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
and Terrestrial Plant Species	and Other Natural Area (ONA) (Western Cape Biodiversity Spatial Plan (WCBSP)). • Impacts on national and provincial protected plant species (SCC). • Disturbance, loss or displacement impacts on animal SCC, especially for Riverine Rabbits and Karoo Dwarf Tortoise. • Introduction and spread of alien invasive species. • Increased erosion and soil compaction. • Littering and general pollution. **Operational Phase:** • Direct and indirect faunal disturbance and mortality. • Increase in alien invasive species. • Loss of species composition and diversity. • Littering and general pollution. **Decommissioning Phase:** • Loss of habitat. • Direct and indirect disturbance and mortality of fauna. • Disposal of used parts – waste management. • Increased alien invasive species. **<u>Negative Cumulative Impacts:</u>** **Construction and Decommissioning Phases:** • Loss of CBAs, natural vegetation and sensitive features. **Construction, Operational and Decommissioning Phases:** • Loss and/or displacement of plant and animal SCC. • Increased alien invasive species.	▪ For non-linear infrastructure, the Watercourse habitat should be avoided as far as possible as per the sensitivity map compiled for Terrestrial Biodiversity. In addition, refer to the Aquatic Biodiversity Assessment where the watercourse is delineated, mapped and suitable buffers recommended by the Aquatic Biodiversity specialist. ▪ Rehabilitate disturbed areas that are no longer required for the operational phase of the development. ▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical specialist prior to vegetation clearance and disturbance. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Western Cape Biodiversity Act, 2021 (Act 6 of 2021), in terms of section 62 of the Nature Conservation Ordinance (as amended). ▪ Search and rescue for sensitive animal species before areas of intact vegetation are cleared and ongoing during construction, as required. This should be conducted by relevant experts with experience in search and rescue of the faunal groups concerned. ▪ Speed restrictions (40 km/hour is recommended) should be in place to reduce the amount of dust caused by vehicle movement along the roads, and to reduce possible fauna fatalities with vehicle collisions. ▪ In areas where Riverine Rabbits and Karoo Dwarf Tortoise are likely active, reduce speed limits to 30 km/hour and place appropriate signage next to the road to indicate sensitive areas. ▪ Any overhead cabling with associated pylons within and near (within 1 km) areas of suitable habitat should be designed so as to discourage crows from nesting on the structures and preying on Karoo Dwarf Tortoise. ▪ No additional water sources should be provided: construction of dams or water storage must be prohibited or enclosed in a container without leaks. Artificial surfaces should be constructed in a manner to avoid the pooling of rainwater, with suitable drainage designs. Unused dams should be dismantled. ▪ Fences should be constructed in such a way so that burrowing animals can still gain access. Electrified fences must not have active wires below 20 cm from ground level and a guard wire set at 20 cm can be used to keep larger tortoises away from the fence. ▪ Ground clearing and the digging of trenches should ideally not take place during the dry season (typically June to September), in order to minimise the impacts of dust. Where this is not possible, the appropriate dust suppression measures must be implemented. ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site. ▪ Rehabilitate new vehicle tracks and areas where the soil has been compacted as soon as possible after use. ▪ The site camp must not be located in very high and high sensitivity areas and their buffer zones. ▪ Dangerous goods may not be stored within 100 m of a watercourse. ▪ Ablution facilities must be located outside sensitive areas and their buffer zones. **Operational Phase:** ▪ Reduce the presence of human activity on the project area as far as possible by only focusing on the areas where operational tasks are required.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		▪ Persecution of fauna species must be reduced through education and awareness campaigns. No physical harm, collection or hunting to any species may occur. ▪ Minimise use of infrastructure that could be used for nesting and making structures less suitable by selecting specific designs or using perch deterrents. ▪ Corvid (crows and ravens) censuses must be included in the avifauna operational monitoring programme, and if corvid populations show large increases, then additional measures such as nest removal and humane euthanising of corvids must be considered and implemented (this will require an ornithologist and possible permits). ▪ If trends or patterns emerge from the data (e.g., high incidence of tortoise mortality), appoint a suitably qualified specialist to develop and implement corrective actions. ▪ In areas where Riverine Rabbits and Karoo Dwarf Tortoise are likely active, reduce speed limits to 30 km/h and place appropriate signage next to the road to indicate sensitive areas. ▪ Movement barriers installed in the construction phase must be monitored and maintained weekly to ensure that they are accessible, clean and fully functional. This can be adapted to biweekly or monthly, depending on the outcomes of the construction phase data and recommendations made. ▪ Equipment with low noise emissions must be used to not disrupt ecological life cycles (breeding, migration, feeding) of animals. Do not unnecessarily disturb faunal species, especially during the breeding season. ▪ Implement appropriate rehabilitation measures to return all disturbed habitats to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction. ▪ The site-specific alien and invasive species (AIS) Management Plan must be implemented for the first year of the operational phase. Thereafter, alien vegetation must continue to be monitored and eradicated annually throughout the life of the project. ▪ All waste must be disposed of properly and not stored or disposed of in open dumps where birds can forage. ▪ Vehicles must be in good working condition, with no oil, water or fuel leaks. ▪ All vehicles must be regularly inspected, and any problems corrected. **Decommissioning Phase:** ▪ The vegetation composition, especially within suitable rocky habitat and surroundings, must be rehabilitated to promote foraging habitat available for the Karoo Dwarf Tortoise. Accordingly, rehabilitation efforts cannot just focus on reseeding grasses but must also include replacement of forb and succulent diversity, appropriately. ▪ All infrastructure associated with the project must be dismantled and removed to reduce suitable nesting and perching habitat for corvids. ▪ Pending outcome of corvid censuses included in the avifauna operational monitoring, additional measures might be required. ▪ Decommissioning works should avoid sensitive breeding/migration periods where possible. ▪ Prepare a Waste Inventory during decommissioning to categorise materials into the various categories. ▪ Dismantled parts must be reused, repurposed or recycled where possible. ▪ Recover copper and aluminium wiring for recycling.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		▪ Where feasible, foundations should be partially removed (at least cut to 1 m below ground) to allow topsoil cover and vegetation re-establishment. ▪ Follow an alien and invasive species control and monitoring plan in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004, as amended) (NEMBA) by implementing appropriate control methods during and after decommissioning.
Appendix G.3: Aquatic Biodiversity and Species	**Negative Direct and Indirect Impacts:** **Construction Phase:** ▪ Direct Impact: Decrease in habitat integrity. ▪ Direct Impact: Decrease in aquatic ecosystem integrity (removal or loss of aquatic vegetation). ▪ Direct Impact: Reduced water quality, including increased sedimentation and risks of contamination of surface water runoff. ▪ Indirect Impact: Decrease in aquatic ecosystem integrity (alien vegetation infestation). ▪ Indirect Impact: Stress on a water resource. ▪ Indirect Impact: Road crossing structures may impede flow in the aquatic features. **Operational Phase:** ▪ Direct Impact: Decrease in aquatic ecosystem integrity (ongoing disturbance). ▪ Indirect Impact: Decrease in aquatic ecosystem integrity (disturbance of cover vegetation and soil). ▪ Indirect Impact: Modified hydraulics in the watercourses as a result of any structures associated with the proposed road crossings through the watercourses. ▪ Indirect Impact: Alien vegetation invasion in aquatic features. ▪ Indirect Impact: Stress on a water resource. **Decommissioning Phase:** ▪ Direct Impact: Increased disturbance of aquatic habitat due to the increased activity on the site. ▪ Indirect Impact: Increased sedimentation and risks of contamination of surface water runoff.	***Note: The significance of all identified impacts in the Aquatic Biodiversity and Species Assessment is rated as very low significance post-mitigation. Therefore, only some mitigation measures have been highlighted below for each phase.*** **Construction Phase:** ▪ Implement recommended development setbacks to minimise any works within and disturbance of aquatic ecosystems (and their buffers). ▪ Water use for construction should be minimised as much as possible. The water should be obtained from a lawful and existing water allocation or other viable water sources for construction purposes. ▪ The road crossing structures should be properly designed to not impede flow in watercourses, cause blockages or erosion - low water crossing is preferred. Use existing crossings, as best as possible and where allowable. ▪ Avoid disturbing aquatic habitats as far as possible. Rehabilitate disturbed aquatic habitats once construction works are complete and revegetate them with suitable local indigenous vegetation if required. ▪ Construction materials brought onto the site should be certified as free of alien plant seed. Sources of alien seed should be prevented from being brought onto the site with imported materials. ▪ Undertake monitoring for the growth of alien vegetation during the construction and post-construction phase. ▪ Any works within aquatic features should be undertaken in the dry season where possible. ▪ Sediment traps should be installed and maintained where necessary. ▪ Construction sites and laydown areas should be located within the assessed buildable areas, and should be placed at least 35 m away from the delineated aquatic features. ▪ Good housekeeping and site management measures must be implemented at the laydown areas and the construction site as per the project EMPr and monitored by the appointed Environmental Control Officer (ECO). **Operational Phase:** ▪ The areas of high aquatic sensitivity should be treated as no-go areas for the WEF footprint and hardened areas, whereas and the areas of medium sensitivity should be avoided but can be developed with mitigation (i.e. limit the placement of infrastructure in areas of medium aquatic sensitivity as far as possible). ▪ Invasive alien plant growth and signs of erosion should be monitored on an ongoing basis to ensure that the disturbed areas do not become infested with invasive alien plants. ▪ Access project infrastructure using existing roads and access tracks established during the construction phase. ▪ Implement and adhere to a Stormwater Management Plan for the proposed development that addresses the stormwater runoff from the developed areas.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Negative Cumulative Impacts: **Construction and Decommissioning Phases:** ▪ Increased disturbance of aquatic habitat due to the increased activity in the wider area. **Operational Phases:** ▪ Degradation of ecological condition of aquatic ecosystems.	▪ Any new structures within the watercourses associated with the proposed project must not impede flow, or fragment the aquatic habitats, in the watercourses. ▪ A sustainable water supply should be used. **Decommissioning Phase:** ▪ Minimise works within aquatic ecosystems. ▪ Laydown areas should be placed within approved WEF footprint and layout. ▪ Rehabilitate and revegetate disturbed areas, where required. ▪ Mitigation and follow-up monitoring of alien vegetation growth and erosion may be required. ▪ The road network should be returned to that resembling pre-construction, with all additional roads removed where possible.
Appendix G.4: Avifauna Impact Assessment	**Negative Impacts:** **Construction Phase:** ▪ Displacement of avifauna from the area due to disturbance as a result of noise and movement associated with the construction activities. ▪ Total or partial displacement of avifauna due to habitat loss/transformation associated with the construction and presence of the wind turbines, associated infrastructure. **Operational Phase:** ▪ Bird mortality due to collisions with the wind turbines. ▪ Bird mortality due to electrocutions of priority species in the on-site substation complex and on the overhead sections of the internal 33 kV cables. ▪ Bird mortality of power line sensitive species due to collisions with the 33 kV overhead lines (if any). **Decommissioning Phase:** ▪ Displacement of avifauna from the area due to disturbance (noise and movement) associated with the decommissioning activities. **Negative Cumulative Impacts:** **Construction Phase:** ▪ Total or partial displacement of avifauna due to habitat loss/transformation associated with the construction and	**Construction Phase:** ▪ Vehicle and pedestrian access to the site should be controlled and restricted to the construction footprint to prevent unnecessary destruction of vegetation. ▪ Vegetation clearance must be limited to what is absolutely necessary and in adherence to rehabilitation measures. ▪ The mitigation measures put forward by the Aquatic, and Terrestrial Biodiversity Specialists must be strictly implemented, especially as far as limitation of the activity footprint is concerned. **Operational Phase:** ▪ No turbines are to be located in the buffer zones as indicated in the sensitivity map included in the Avifauna Impact Assessment. ▪ All wind turbines must have one or two blades patterned according to a South African Civil Aviation Authority (SACAA) approved pattern and the latest guidance on blade patterning as published by BirdLife South Africa (BLSA) to reduce the risk of avian collisions. The current guideline is included in Appendix I of the Avifauna Impact Assessment (which is included in Appendix G.4 of the EIA Report). ▪ The results of the pre-construction monitoring must guide the layout of the turbines, especially as far as proposed no-turbine zones are concerned. No turbines must be located in the buffer zones which were identified based on the results of the pre-construction monitoring, with a specific view to limit the risk of collisions to a variety of birds, including several Red Data species. Note that the current layout has taken these buffer zones into consideration. ▪ It is recommended that the minimum tip height of the turbine blades should be at least 25 m, preferably higher, as low flying birds are at greater risk of turbine collisions if the lower tip height is too low. The disturbance factor would be greater too, especially for ground nesting birds. ▪ Formal live-bird monitoring and carcass searches should be implemented in the operational phase, as per the most recent edition of the Best Practice Guidelines at the time (Jenkins et al. 2015) to assess collision rates. ▪ A Biodiversity Management Plan (BMP) must be compiled for the site prior to commercial operation, and potential biological removal (PBR) values for all priority avifaunal species on-site must be determined. The BMP must define acceptable mortality thresholds for species of conservation concern, using the best information on population estimates, trends, Red Data status and guidelines available at the time. If fatality numbers exceed annual thresholds, additional mitigation measures must be implemented as part of the adaptive management strategy. The choice of additional mitigation

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	presence of the Renewable Energy Projects and their associated Grid Connections. **Construction and Decommissioning Phases:** ▪ Displacement of avifauna from the area due to disturbance as a result of noise and movement associated with the construction and decommissioning activities of the Renewable Energy Projects and their associated Grid Connections. **Operational Phase:** ▪ Mortality of avifauna due to collisions with the wind turbines. ▪ Mortality of avifauna due to electrocutions on the overhead sections of the internal medium voltage networks and in the substation yards. ▪ Mortality of avifauna due to collisions with the medium voltage overhead lines and/or high voltage overhead power lines (grid connections).	measures will be dependent on the measures in place at the time and could involve the implementation of Shutdown on Demand (SDoD) measures or selective curtailment of specific turbines during high-risk periods. ▪ Phosphorescent-type Bird Flight Diverters (BFDs) must be fitted in a staggered configuration (on the earth wire and conductor) to all overhead lines for the full length according to the applicable Eskom Engineering Instruction (5 m apart for medium voltage power lines). These devices must be installed as soon as the conductors are strung. ▪ Conduct quarterly inspections of all overhead sections of the medium voltage power lines to look for bird carcasses and to ensure that BFDs are still intact and functioning correctly. ▪ Any bird fatalities should be recorded as part of the post-construction avifaunal monitoring reports. **Decommissioning Phase:** ▪ Activity should as far as possible be restricted to the footprint of the infrastructure. ▪ Measures to control noise and dust should be applied according to current best practice in the industry.
Appendix G.5: Visual Impact Assessment	**<u>Negative Direct Impacts:</u>** **Construction Phase:** ▪ Visual impact of construction activities on residents of homesteads and visitors to tourist accommodation (if present) within 5 km of the proposed WEF. ▪ Visual impact of construction activities on observers travelling along roads within 5 km of the proposed WEF. **Operational Phase:** ▪ Visual impact on residents of homesteads and visitors to tourist accommodation (if present) within 5 km of the proposed WEF. ▪ Visual impact on observers travelling along the roads within 5 km of the proposed WEF. ▪ Visual impact on residents of homesteads and visitors to tourist accommodation (if present) within 5-10 km of the proposed WEF. ▪ Visual impact on observers travelling along roads within 5-10 km of the proposed WEF.	**Planning Phase:** ▪ Retain/re-establish and maintain natural vegetation in all areas outside of the development footprint, but within the project site. ▪ Existing roads should be utilised wherever possible. New roads should be planned to take due cognisance of the topography to limit cut and fill requirements. Construction/upgrade of roads should be undertaken properly, with adequate drainage structures in place to forego potential erosion problems. ▪ In terms of onsite ancillary buildings and structures, it is recommended that it be planned so that the clearing of vegetation is minimised. This implies consolidating this infrastructure as much as possible and making use of already disturbed areas rather than undisturbed sites wherever possible. ▪ It is recommended that no turbines should be placed within 1 km of any homesteads, unless otherwise agreed upon by the affected landowner, even if the landowner is located within the development site. Proof of such agreement is required. Note that such agreement has been obtained from the affected landowner and included as an appendix to the Visual Impact Assessment. ▪ Ensure the application of blade painting is undertaken during the manufacturing process and not as an after application during the construction phase. **Construction Phase:** ▪ Ensure that vegetation is not unnecessarily cleared or removed during the construction period. ▪ Reduce the construction period through careful logistical planning and productive implementation of resources. ▪ Ensure that the placement of laydown areas and any potential temporary construction camps are within the areas planned in order to minimise vegetation clearing (i.e. in already disturbed areas).

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	▪ Visual impact on residents of homesteads and visitors to tourist accommodation (if present) within 10-20 km of the proposed WEF. ▪ Visual impact on observers travelling along roads within 10 – 20 km of the proposed WEF. ▪ Visual impact on residents of homesteads and visitors to tourist accommodation (if present) located beyond the 20 km radius of the proposed WEF. ▪ Visual impact on visitors to the formally protected Karoo National Park located beyond 20 km of the proposed WEF. ▪ Visual impact of shadow flicker on sensitive visual receptors in close proximity to the proposed WEF. ▪ Visual impact of lighting at night on residents and visitors to homesteads and tourist accommodation within 10 km of the proposed WEF. ▪ Visual impact of lighting at night on observers travelling along roads within 10 km of the proposed WEF. ▪ Visual impact of the ancillary infrastructure on observers in close proximity to the structures. ▪ Visual impact of blade painting on the overall perception of the WEF by sensitive receptors especially within 0-5 km and potentially up to 10 km radius of the wind turbine structures. **Decommissioning Phase:** ▪ Visual impact of decommissioning activities on sensitive visual receptors within 5 km of the proposed WEF. **<u>Negative Indirect Impacts:</u>** **Operational Phase:** ▪ The potential impact on the sense of place of the region. **<u>Negative Cumulative Impacts:</u>** **Operational Phase:** ▪ The potential cumulative visual impact of wind farms, solar farms and EGI on the visual quality of the landscape.	▪ Ensure that rubble, litter, and disused construction materials are appropriately stored and then disposed of regularly at licensed waste facilities. ▪ Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent). ▪ Restrict construction activities to daylight hours whenever possible in order to reduce the visual impacts associated with lighting. ▪ Rehabilitate all disturbed areas immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications. **Operational Phase:** ▪ Ensure that the maintenance of the turbines and ancillary structures and infrastructure must be undertaken to ensure that the facility does not degrade, therefore aggravating the visual impact. ▪ Roads must be maintained to forego erosion and to suppress dust, and rehabilitated areas must be monitored for rehabilitation failure. Remedial actions must be implemented as and when required. ▪ Monitor rehabilitated areas for rehabilitation failure or concerns and implement remedial action as and when required. ▪ Implement post-construction monitoring to evaluate both avifaunal effectiveness and public perception of painted blades. It is suggested that this is implemented via two complementary monitoring programmes: (a) avifaunal collision monitoring to quantify mortality reduction (as specified by the avifaunal specialist), and (b) visual perception monitoring (stakeholder surveys/photo points) to assess community responses and any unforeseen visual intrusion. Use agreed metrics (e.g., raptor fatalities, local resident perception scores). **Planning and Operational Phase:** ▪ Implement needs-based night lighting if available and considered acceptable by the South African Civil Aviation Authority (SACAA). ▪ Limit aircraft warning lights to the turbines on the perimeter according to SACAA requirements, thereby reducing the overall impact. ▪ Shield the sources of light by physical barriers (walls, vegetation, or the structure itself). ▪ Limit mounting heights of lighting fixtures or alternatively use footlights or bollard level lights. ▪ Make use of minimum lumen or wattage in fixtures. ▪ Make use of down-lighters or shielded fixtures. ▪ Make use of Low-Pressure Sodium lighting or other types of low impact lighting. ▪ Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes. **Decommissioning Phase:** ▪ Remove infrastructure not required for the post-decommissioning use. ▪ Rehabilitate all areas. Consult an ecologist regarding rehabilitation specifications.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix G.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	***Note: The Heritage Impact Assessment is an integrated report that addresses Archaeology, Palaeontology, Cultural Landscape and Visual. The Palaeontology and Visual Impacts in the integrated Heritage Impact Assessment are based on the dedicated Palaeontology and Visual Impact Assessments undertaken for the proposed project, described separately in this table. These have not been repeated in this section.*** **Negative Direct Impacts:** **Construction Phase:** ▪ Loss of archaeological sites and material. ▪ Damage to or loss of packed stone structures and kraals. ▪ Impacts to the cultural landscape. **Operational Phase:** ▪ Impacts to the cultural landscape. **Decommissioning Phase:** ▪ Loss of archaeological sites and material. ▪ Impacts to the cultural landscape. *Note: It is important to note that even though the impacts on archaeological sites and material during construction are rated as negative, the avoidance of significant identified sites and, where this is not possible, the recording and/or recovery, and curation of such material in a suitable institution would represent positive outcomes and would enhance the regional archaeological database and contribute to the broader scientific understanding of South Africa's heritage.* **Negative Cumulative Impacts:** **Construction and Operational Phases:** ▪ Impacts to the archaeology and cultural heritage resources.	**Construction Phase:** ▪ A pre-construction archaeological walkover survey of the final WEF layout must be undertaken. ▪ Finds of archaeological material need to be reported to Heritage Western Cape (HWC) (and the South African Heritage Resources Agency (SAHRA) where applicable) and the project archaeologist. ▪ Historic walls to be demolished are to be photographically recorded before demolition. ▪ No-go areas must be implemented around certain stone features. These are listed below: o 30 m buffer around JG001(lithic scatter). o 30 m buffer around JG002 (upper grindstone). o 10 m buffer around G003 (small stone structure). o 30 m buffer around JG007 (stone kraal). o 30 m buffer around JG008 (small stone ruin). o 30 m buffer around JG009 (small oval stone structure). o 30 m buffer around JG010 (small circular stone structure). **Operational Phase:** ▪ Implementation of recommendations of the Visual Impact Assessment to reduce impacts to the cultural landscape. **Decommissioning Phase:** ▪ Finds of archaeological material are reported to HWC (and SAHRA where applicable) and the project archaeologist. ▪ Implementation of recommendations of the Visual Impact Assessment to reduce impacts to the cultural landscape.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix G.7: Palaeontology Impact Assessment	**<u>Negative Direct and Cumulative Impacts:</u>** **Construction Phase:** ▪ Loss of fossil heritage. *Note: Any residual negative impacts from fossil loss would be partially offset by a positive outcome, as any newly discovered, well-recorded, and suitably curated fossil material recovered during construction would enhance the regional palaeontological database and contribute to the broader scientific understanding of South Africa's fossil heritage.*	**Construction Phase:** ▪ Implement the Chance Fossil Finds Protocol that has been incorporated into the project EMPrs (Appendix H of the EIA Report). ▪ Implement training of accountable supervisory personnel by a qualified palaeontologist.
Appendix G.8: Socio-Economic Impact Assessment	**<u>Negative Impacts</u>** **Construction Phase:** ▪ Indirect Impact: Social disruption and change in social dynamics. ▪ Indirect Impact: Reduced quality of life and increased risks due to construction near residences. **Decommissioning Phase:** ▪ Direct Impact: Reduced employment and funding. **<u>Direct Positive Impacts</u>** **Construction Phase:** ▪ Direct Impact: Capital investment (CapEx) contributing to the national, regional and local economy. ▪ Direct Impact: Generation of employment, income and skills. **Operational Phase:** ▪ Direct Impact: Operational investment (OpEx) contributing to the national, regional and local economy. ▪ Direct Impact: Generation of employment, income and skills. ▪ Direct Impact: Increased community prosperity through contributions and income from the WEF.	***<u>Note: Several mitigation and enhancement measures have been identified in the assessment. The list below is only a summary of some of the recommendations.</u>*** **Positive Impacts – Enhancement Measures:** **Construction Phase:** ▪ Source as many goods and services as far as possible from the local and regional economy (e.g. use local contractors and accommodation and equipment suppliers as far as possible and purchase perishable goods locally). ▪ Consult with existing Independent Power Producer (IPP) projects that successfully procure from local Small, Micro and Medium Enterprises (SMMEs) to share learnings, where possible. ▪ Develop, communicate and implement a fair and transparent labour and recruitment policy. ▪ Ensure diversity and gender equality in recruitment, as far as possible. ▪ Provide training to staff and service providers before and/or during the construction phase; including training on how to position themselves for other employment opportunities once construction ends. **Operational Phase:** ▪ Develop and implement a fair and transparent procurement policy. ▪ Maximise use of local skills and resources through preferential employment of locals where practicable. ▪ Regularly engage with community stakeholders to develop meaningful strategies for community development. ▪ Define vision for economic development in consultation with communities. ▪ Develop a Governance Plan with clear governance rules for the Community Trust, including administration and trustee and beneficiary selection. ▪ Ensure that funding requirements for each project are considered in the future so that projects are viable and sustainable. ▪ Set clear goals for each project and phase out funding once these goals are achieved. ▪ Ensure regular external auditing of the Community Trust as well as supported projects. ▪ Consider auditing projects for several years after funding has ceased to ensure their benefits are sustained.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Cumulative Positive Impacts ▪ Stimulation of economic and employment growth. ▪ Increased community prosperity through contributions and income from IPPs.	**Negative Impacts – Mitigation Measures:** **Construction Phase:** ▪ Clearly publicise and implement a recruitment policy. ▪ Work together with impartial local representatives to identify local people during the recruitment process. ▪ Provide transport to site and other incentives to reduce the number of workers accommodated in Engineering, Procurement and Construction (EPC) accommodation to an absolute minimum. ▪ Consult with the municipalities regarding the capacity of existing services and infrastructure (e.g. provision of water, electricity, waste removal, sanitation and housing) to cope with additional workers brought into the area during the construction period. ▪ Consider supporting projects that improve local services and infrastructure and/or deal with social problems or conflicts through the social upliftment programme, if the need arises. ▪ Liaise with nearby residents before and during construction to inform them of construction status and discuss safety management measures to reduce security risks. ▪ Maintain a visible security presence on site. ▪ Implement a grievance mechanism during the construction phase. ▪ Communicate and implement a compensation procedure in the event of damages directly linked to the construction. ▪ Control site access. ▪ Provide transportation to site for unskilled workers. ▪ Declare areas outside of the construction site (that are on private land associated with the project) as no-go areas for construction staff. ▪ Erect and regularly inspect a boundary fence. ▪ Regularly inspect the project area and surrounding area for signs of illegal activity. ▪ Regularly clean any litter from the project area and surrounding area. **Decommissioning Phase:** ▪ Clearly communicate project duration to staff and communities. ▪ Prolong the operational life of the project as much as possible. ▪ Assist with the sustainable administration of funds throughout the project lifetime. ▪ Assist with recommendations and referrals where possible.
Appendix G.9: Traffic Impact Assessment	**Direct Negative Impacts** **Construction Phase:** ▪ Increased road incidents. ▪ Road degradation. ▪ Dust. ▪ Exhaust emissions. ▪ Hydrocarbon spills.	**Construction Phase:** ▪ Post relevant road signage along affected routes. ▪ Create a local WhatsApp Group, notifying local road users of expected deliveries and associated routes; and for the local community and post notices of road conditions and proposed alternatives. ▪ Schedule deliveries to avoid local congestion. ▪ Identify alternative routes where possible. ▪ Request the assistance of local law enforcement, as required.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Operational Phase: ▪ Increased road incidents. **<u>Cumulative Negative Impacts</u>** **Construction and Operational Phases:** ▪ Construction Phase: Simultaneous construction of all renewable facilities in the Northern, Middle, Southern Clusters and associated Grid Connections (subject to an EA) as proposed by GEED, together with the operational phase of the three proposed Nuweveld Wind Farms. ▪ Operational Phase: Simultaneous operation of all renewable facilities in the Northern, Middle, Southern Clusters and associated Grid Connections (subject to an EA) as proposed by GEED, together with the operational phase of the three proposed Nuweveld Wind Farms.	▪ A Traffic Management Plan (TMP) is to be compiled once the contractor has been appointed and all the relevant details of the construction process are known. A TMP framework has been compiled for the proposed Northern Cluster (i.e. Eland WEF and Windy Plains WEF) and has been included as an Appendix to the Traffic Impact Assessment. The contractor appointed to construct the proposed development is to use the cluster TMP as a guideline and platform for the compilation of a project specific TMP, once appointed. The TMP must consider all aspects and potential risks relating to the traffic to and on site, including motorised, non-motorised and pedestrians. ▪ Regular maintenance of the public road network must be undertaken. Specifically, contribute to the maintenance of the public roads in the area that are used by and impacted on by the proposed development/s during the construction phase of the development/s, provided this is agreed to by the relevant road authorities. The maintenance should be conducted over weekends to minimise the impact on the average construction period. Such maintenance must be undertaken with approval from the relevant local authorities. ▪ A photographic record of the road condition should be maintained throughout the various phases of the development/s. This provides an objective assessment and mitigates any subjective view from road users. ▪ Maintain continuous engagement with the Northern Cape Department of Roads and Public Works (NCDRPW) and Western Cape Department of Transport and Public Works (WCDTPW). ▪ Upgrade unpaved roads that are used by and impacted on by the proposed development/s to a suitable condition for proposed construction vehicles, provided this is agreed to by the relevant road authorities. ▪ Ensure that the roads that are used by and impacted on by the proposed development/s are left in the same or better condition, post-construction, based on approval and agreement by the relevant road authorities. ▪ Contractor to implement dust suppression in the immediate vicinity of the site where feasible. ▪ Contractor shall take into account dust impacts when activities on site are scheduled and executed. ▪ Contractor to have an emergency plan in place and spill kit available. **Operational Phase:** ▪ Reduce the number of vehicles on the roads when transporting staff during peak periods. ▪ Ensure that driver awareness and road safety training is provided. ▪ Ensure all vehicles are roadworthy, visible, adequately marked, and operated by an appropriately licenced operator. ▪ Drivers to adhere to the speed limit on the public road. ▪ Post the speed limits along the relevant roads as approved by the road authority. ▪ Drivers not complying with speed limits shall be subject to penalties.
Appendix G.10: Battery Energy Storage System (BESS) High Level Safety, Health and Environment	Various risks were identified in terms of safety, health and the environment due to the proposed BESS. The BESS High Level SHE Risk Assessment identified risks, hazards, and consequences, such as, but not limited to: ▪ Human Health - chronic exposure to toxic chemical or biological agents. Causes - Construction materials such as	▪ There are numerous different BESS technologies but using one consistent technology system for the BESS installations associated with all the Genesis Beaufort West Renewable Energy Cluster Project developments would allow for ease of training, maintenance, emergency response and could significantly reduce risks. ▪ Where reasonably practicable, “state-of-the-art” battery technology should be used with all the necessary protective features, e.g., draining of cells during shutdown and standby-mode, full Battery Management System (BMS) with deviation monitoring and trips, leak detection systems. ▪ Ensure that the technical and system suggestions for managing and reducing risks, as specified in the Risk Assessment, specifically in terms of preventative and mitigative measures are included in the design.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
(SHE) Risk Assessment	cement, paints, solvents, welding fumes, truck fumes etc. Consequences - Employee / contractor illness. ▪ Human Health - exposure to noise. Causes - Drilling, piling, generators, air compressors. Consequences - Adverse impact on hearing of workers. Possible nuisance factor in nearby areas. ▪ Human and Equipment Safety - exposure to fire radiation. Causes – Involvement in an external fire. Fire involving fuels used in construction vehicles or vehicles themselves (e.g., tyre fire). Fire due to uncontrolled welding or other hot-work Consequences - Injuries due to radiation especially amongst first responders and bystanders. Fatalities unlikely from the heat radiation as not highly flammable nor massive fire. ▪ Human and Equipment Safety - exposure to fire radiation. Causes - Solid state battery containers damaged on route. Involvement in an external fire. Consequences – Injuries due to radiation especially amongst first responders and bystanders. Fatalities unlikely from the heat radiation as not highly flammable nor massive fire. ▪ Human and Equipment Safety - exposure to explosion over pressures. Causes - With solid state lithium containers, flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Consequences - Potential fatalities amongst first responders. Damage to containers, transport trucks or other nearby items.	▪ The overall design should be subject to a full Hazard and Operability Study (HAZOP) prior to finalization of the design. ▪ For the Vanadium Redox Flow BESS (VRFB) systems an end of life (and for possible periodic purging requirements) solution for the large quantities of hazardous electrolyte should be investigated, e.g., can it be returned to the supplier for re-conditioning. ▪ Prior to importing any solid-state battery containers into the country, the contractor should ensure that: o An Emergency Response Plan is in place that would be applicable for the full route from the ship to the site. This plan would include details of the most appropriate emergency response to fires both while the units are in transit and once they are installed and operating. o An End-of-Life plan is in place for the handling, repurposing or disposal of dysfunctional, severely damaged batteries, modules and containers. ▪ The site layout and spacing between Solid State BESS (SSB) containers should be such that it mitigates the risk of a fire or explosion event spreading from one container to another. ▪ In order to limit the possibility of domino failures from the BESS onto transformers and to limit direct impacts of any fire or explosion on the substation, the BESS should be separated from the substation by at least 20 m, or greater if specified in local or International Standards. ▪ In order to limit on-site risks, any office and maintenance buildings should be located at least 20 m, although preferably 50 m, from the BESS. ▪ A suitable separation distance (i.e. 500 m) between the BESS and occupied farmhouses / developments / public facilities / residences etc. needs to be implemented. Future developments in the area should take cognisance of the advised 500 m separation distance. ▪ From a high-level SHE Risk Assessment perspective, where there is a choice of alternative locations for the BESS, those that are further from water courses would be preferred. VRFB hazards are mostly related to possible loss of containment of electrolyte and solid-state systems may experience fires that may result in loss of containment of liquids or the use of large amounts of fire water which could be contaminated. The run-off should not enter watercourses directly. Ideally, the BESS should be placed at least 50 m away from known boreholes and water points, and outside of the sensitive areas identified by the Aquatic Biodiversity specialist. ▪ Once the technology has been chosen and more details of the actual design are available, all risk assessments required under the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHS Act) should be in place (prior to commencement, after EA and other necessary approvals are granted (should such be granted)).
Appendix G.11: Geotechnical Impact Assessment	**<u>Direct Negative Impacts</u>** **Construction Phase:** ▪ Displacement of geologic material. Removal of rocks and other geologic materials for site levelling and grading, resulting in loss of geologic materials. ▪ Contamination of geologic materials as a consequence of the construction activities by earthworks machinery and other apparatus.	***<u>Note: The significance of all identified direct impacts in the Geotechnical Impact Assessment is rated as very low significance post-mitigation. Therefore, only some mitigation measures have been highlighted below for each phase.</u>*** **Construction Phase:** ▪ Favour dolerite as an aggregate (as opposed to Karoo sandstones and mudstones). This is subject to investigation. ▪ Any road cuttings should be designed by an appropriately qualified professional. ▪ Drainage on site should be designed and managed appropriately. ▪ Investigate and confirm the geotechnical suitability of each structure (or other appropriate level of investigation) prior to construction (i.e. determine that soil with an adequate bearing capacity is obtained beneath each footing). Such

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Operational Phase: ▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion. ▪ Contamination of geologic materials as a consequence of typical maintenance activities, or spillages associated with the BESS. **Decommissioning Phase:** ▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion. ▪ Contamination and disturbance of geologic materials as a consequence of typical decommissioning activities. **<u>Cumulative Negative Impacts</u>** The same impacts described above were identified in the cumulative impact assessment for the construction, operational and decommissioning phases.	investigations would not be required to fulfil the requirements of this EIA process. However, it would be necessary prior to construction. ▪ Only strip vegetation necessary for the next phase of construction. ▪ Install temporary drainage to divert stormwater away from active construction activities, where required. ▪ Effective stormwater management must include effective stabilisation (e.g. gabions and Reno mattresses) of exposed soil. ▪ Where impacted through construction-related activities, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled. ▪ During the execution of the works, appropriate measures to prevent pollution and contamination of the environment must be implemented, e.g. ensuring that construction equipment is well maintained. ▪ Provision must be made for refuelling at the storage area / site camp, and workshop by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained. ▪ A spill kit should be maintained on site. If spillages occur, they should be contained and removed as rapidly as possible, with correct disposal procedures of the spilled material, as reported. Proof of disposal (waste disposal slips or waybills) should be obtained and retained on file for auditing purposes. **Operational Phase:** ▪ Install drainage to divert stormwater away from activities, roads/tracks, and structures, where required. ▪ Implement the Stormwater Management Plan. ▪ Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used. ▪ Ensure that the BESS is assembled in line with relevant product specifications and with the necessary measures to prevent potential contamination of the surrounding environment. ▪ For the BESS, it is recommended that any wastewater produced by fire hydrants should not be allowed to runoff into the environment, and any waste products produced from the BESS should be removed and disposed of appropriately. **Decommissioning Phase:** ▪ Only drive and park vehicles where necessary. ▪ Land rehabilitation to near natural state, i.e. removal of foundations and backfilling of any resultant voids within the soil, as well as removal of hard surfaced areas. Replacement soil should be sourced locally to ensure homogeneity. Reseed with natural vegetation and grasses to further mitigate future displacement. ▪ Reinstate natural topography where cut-to-fill embankments have been constructed. ▪ Implement generic environmental management procedures for infrastructure.
Appendix G.12: Bat Impact Assessment	**<u>Direct Negative Impacts</u>** **Construction Phase:** ▪ Displacement of bats due to habitat loss / habitat transformation.	**Construction Phase:** ▪ During construction, laydown areas and temporary access roads should be kept to a minimum in order to limit direct vegetation loss and habitat fragmentation. Construction of the infrastructure should, where possible, be situated in areas that are already disturbed. ▪ Limit the removal of vegetation, particularly large mature trees within 50 m of turbine positions.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	▪ Roost Disturbance. ▪ Roost Destruction. **Operational Phase:** ▪ Mortality of bats due to turbine collisions while commuting/foraging. ▪ Mortality of bats due to turbine collisions during migrations. ▪ Light pollution associated risks including loss of insect prey and increased collision risks for bats foraging closer to turbines. **Decommissioning Phase:** ▪ Displacement of bats due to disturbance associated with the decommissioning activities. **<u>Cumulative Negative Impacts</u>** **Operational Phase:** ▪ Cumulative Bat Mortality Impacts.	▪ Potential roosts, specifically buildings and rocky crevices, must be buffered by 200 m, inside which no turbine infrastructure may be placed. No turbines should be installed within 50 m of large mature trees. *Note that no roosts were identified in the study area during the site survey. Additionally, the current layout adheres to the high sensitivity buffer zones identified by the bat specialist, as no turbines fall within the high sensitivity areas.* ▪ The WEF must be designed and constructed in such a way as to avoid the destruction of potential and actual roosts, particularly large mature trees, buildings, and rocky crevices (if blasting is required). ▪ Large mature trees within 50 m of the turbine positions should be inspected for roosting bats, and appropriate mitigation should be undertaken as recommended by a bat specialist. **Operational Phase:** ▪ Designing the layout of the project to avoid areas that are more frequently used by bats will reduce the likelihood of mortality and should be the primary mitigation measure. These areas include key microhabitats such as water features, large mature trees, buildings, and rocky crevices. These areas have been buffered by 200 m. *Note: No turbines are currently located within the buffers in the layout*. ▪ The height of the lower blade swept area must be maximised, and should try to be kept above 50 m. If the minimum blade sweep is lower than 50 m from ground level, the facility runs the risk of reaching fatality thresholds sooner. *Note that the proposed hub height is up to 200 m, whilst the proposed blade length is approximately 100 m. As such, the proposed WEF's lower blade sweep height from ground level is approximately 100 m.* ▪ Operational monitoring should be done according to the guidelines for the first 2 years and every 5 years thereafter. During this monitoring, fatality estimations would need to be evaluated every 3 – 4 months against the South African Bat Assessment Association (SABAA) fatality threshold guidelines (i.e. if they exceed an estimated 32 bat fatalities per year as per current threshold) to determine escalation of mitigation options. ▪ Blade feathering should be implemented at the start of operation. ▪ Apply curtailment during spring, summer and autumn based on an appropriate curtailment plan and/or install acoustic deterrents (based on input from an appropriate bat specialist) if mortality occurs beyond threshold levels as determined based on applicable guidance (MacEwan et al. 2018). The threshold calculations must be done at a minimum of once a quarter (i.e. not only after the first year of operational monitoring) so that mitigation can be applied as quickly as possible should thresholds be reached. **Decommissioning Phase:** ▪ The impacts to bats during this phase are likely to be restricted to disturbance. Provided decommissioning activities are restricted to daylight hours, the impact to bats is predicted to be negligible.
Appendix G.13: Noise Impact Assessment	**<u>Direct Negative Impacts</u>** **Construction Phase:** ▪ Noise pollution due to construction activities (equipment and vehicle noise).	**Construction Phase:** ▪ Staff to receive training on noise sensitivity. ▪ Comply with the Western Cape Noise Control Regulations published in Provincial Notice 200/2013. ▪ Monitor noise during the construction phase to confirm noise levels are within limits. ▪ Limit construction / piling to daytime. ▪ Regularly service equipment to ensure no unnecessary noise is emitted.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Operational Phase: ▪ Daytime: Mechanical and aerodynamic noise from the operation of the wind turbine components. ▪ Nighttime: Mechanical and aerodynamic noise from the operation of the wind turbine components. **Decommissioning Phase:** ▪ Noise pollution due to decommissioning activities (equipment and vehicle noise). **<u>Cumulative Negative Impacts</u>** **Operational Phase:** ▪ Mechanical and aerodynamic noise from the operation of the wind turbine components.	**Operational Phase:** ▪ Conduct noise monitoring during the operational phase to determine actual noise impact and whether further mitigation measures need to be implemented. This may include operating the turbine in a low noise mode (i.e. reducing power output under certain operational conditions). ▪ Implement a 500 m buffer around all noise sensitive areas to ensure no future WTGs impact these noise sensitive areas. Note that the recommended 500 m no-go buffers have been applied and that no WTG are located within these Noise Sensitive Areas (NSAs). **Decommissioning Phase:** ▪ Staff to receive training on noise sensitivity. ▪ Monitoring of noise during the decommissioning phase to confirm noise levels are within limits. ▪ Limit decommissioning activities to daytime in order to take advantage of unstable weather conditions. ▪ Regularly service equipment to ensure no unnecessary noise is emitted.
Appendix G.16: Wake Effects	**<u>Background:</u>** A Wake Effects Study was undertaken with the overall objective of determining the potential impact of the energy production of the Windy Plains WEF on the proposed surrounding WEFs within a 30 km radius; and the potential impact of the proposed surrounding WEFs on the energy production of the Windy Plains WEF. Wake effects could directly influence energy yields and indirectly influence aspects such as the socio-economic and enterprise development initiatives that could be made available by the WEF projects for the surrounding communities if they were to be commercialised. There are no operational WEFs within 30 km of the proposed Windy Plains WEF. A total of 20 proposed WEF projects have received EA within 30 km of the Genesis Northern Cluster WEFs. Note that other Wind Energy Facilities proposed by GEED in the Beaufort West Renewable Energy Cluster have been excluded from the wake effects study (as this is an internal yield management issue for GEED and does not influence other IPPs). Refer to Table 1 and Figure 1 of the Wake Effects Study, which is included in Appendix G.16 of the EIA Report.	**<u>Outcome of the Study:</u>** WindPro™ calculated the theoretical reduction of yield of the Windy Plains WEF caused by surrounding WEFs as shown in Table A below; and the theoretical reduction in yield caused by Windy Plains WEF on surrounding projects as shown in Table B below. The wake loss calculation results in Table B show that while there could be a potential for Windy Plains WEF to impact the other WEF projects through wake loss, this is expected to be by a low value. As shown in Table B, nine of the surrounding projects would experience a wake loss of zero to 0.5%, whereas Hoogland 2 would experience a wake loss of 1 to 1.5%. Conversely, as shown in Table A, the surrounding projects are predicted to have a wake loss effect on the Windy Plains WEF of 3.0 to 3.5% for Hoogland 2, 1 to 1.5% for a further two projects, and zero to 0.5% for a further nine projects. Although there is the potential for a small reduction in yield that could affect socio-economic and enterprise development funding per project, the net effect of all projects contributing to the local community is considered significantly more positive and beneficial. The potential wake loss impacts on all proposed WEFs by Windy Plains WEF and vice versa has been recognised, and the Applicant is committed to addressing wake loss if any or all facilities are commercialised. If the wake impact assessment is updated with final turbine layouts, turbine model, hub heights and other technical considerations, then the wake impact predictions will be significantly more accurate. Only at the point of more certainty around wind farm configurations and commercialisation is it fair, equitable and market standard to conclude a Wake Loss Compensation Agreement based on the outcome of a detailed wake loss assessment. *The Wake Loss Impact Results at this stage are high-level and do not represent*

<table>
<tr><th>Specialist Assessment undertaken</th><th>Key Impacts Identified</th><th>Recommended Mitigation Measures</th></tr>
<tr><td></td><td>The wake loss assessment completed in the EIA Phase is subject to multiple high-level assumptions as various factors still need to be confirmed, such as the final turbine layouts and turbine models for the proposed surrounding WEF projects, including the latter for the proposed Eland and Windy Plains WEFs together with pending DFFE approval of the final layout plans.

The theoretical wake impact of the Windy Plains WEF on the surrounding projects and the theoretical wake impact of the surrounding projects on the Windy Plains WEF was undertaken using the industry accepted wind flow modelling software, WindPro™.</td><td>the actual wake loss impacts in the future sufficiently and fairly enough to be able to reach formal agreements. It is thus not reasonable and fair to conclude a Wake Loss Compensation Agreement at this stage. As the project progresses and is prepared for commercialisation, the Applicant is committed to further engagements with potentially affected WEFs to determine potential issues and impacts of wake loss as may be required.

Table A
<table>
<tr><th>Theoretical reduction in yield caused by wake loss from the following nearby authorised WEF projects ON the Windy Plains WEF:</th><th>Wake Loss %</th></tr>
<tr><td>• Hoogland 2</td><td>3.0 ≥ 3.5</td></tr>
<tr><td>• Mulilo Karoo Wind Power 1
• Mulilo Karoo Wind Power 2</td><td>1.0 ≥ 1.5</td></tr>
<tr><td>• Hoogland 1</td><td>0.5 ≥ 1.0</td></tr>
<tr><td>• Hoogland 4
• Nuweveld North
• Nuweveld West
• Nuweveld East
• Mulilo Karoo Wind Power 3
• Loxton
• Taaibos North
• Taaibos South
• Soutriver Central</td><td>0 ≥ 0.5</td></tr>
<tr><td>• Hoogland 3
• Klipkraal 1
• Klipkraal 2
• Klipkraal 3
• Klipkraal 4
• Klipkraal 5
• Soutriver North</td><td>0.0</td></tr>
</table>
Table B
<table>
<tr><th>Theoretical reduction in yield caused by wake loss from the Windy Plains WEF ON the following nearby authorised WEF projects:</th><th>Wake Loss %</th></tr>
<tr><td>• Hoogland 2</td><td>1.0 ≥ 1.5</td></tr>
<tr><td>• Hoogland 1
• Hoogland 3
• Hoogland 4
• Nuweveld North
• Nuweveld West
• Nuweveld East
• Mulilo Karoo Wind Power 1
• Mulilo Karoo Wind Power 2
• Mulilo Karoo Wind Power 3</td><td>0 ≥ 0.5</td></tr>
<tr><td>• Klipkraal 1
• Klipkraal 2
• Klipkraal 3
• Klipkraal 4
• Klipkraal 5
• Loxton
• Taaibos North
• Taaibos South
• Soutriver North
• Soutriver Central</td><td>0.0</td></tr>
</table>
</td></tr>
</table>

10. SUMMARY OF THE KEY IMPACT ASSESSMENT FINDINGS

Table G below provides a summary of the impact assessment for the proposed project, post-mitigation for direct and indirect impacts. Table H provides the same information for the cumulative impacts. Some impacts were not identified, or are considered insignificant, or could not be measured empirically at the time of assessment.

Based on the findings of the detailed specialist impact assessments, which are included in Appendix G of the EIA Report, the following is concluded for the proposed project:

- With the implementation of mitigation measures, this project is considered to have an **overall Low to Very Low negative environmental impact, with certain moderate and high negative environmental impacts.** Specifically, **high significance** negative impacts (post-mitigation) have been identified in the Visual Impact Assessment and Traffic Impact Assessment for the construction and operational phases. Note that the relevant specialists have explained that this is not unacceptable or a fatal flaw. In addition, **moderate significance** negative impacts (post-mitigation), were identified in the Visual Impact Assessment and Heritage Impact Assessment for the construction and decommissioning phases, as well as in the Avifauna Impact Assessment and Heritage Impact Assessment for the operational phase. Refer to Table G.

- With the implementation of enhancement measures, this project is considered to have an **overall Low to High positive socio-economic impact**. Refer to Table G.

- The majority of the **cumulative negative impacts** were rated with a **Low and Very Low** post-mitigation impact significance for the construction, operational and decommissioning phases, with the exception of Avifauna impacts being rated as **Moderate** during the operational phase, and Visual impacts being rated as **Very High** also during the operational phase. The Visual Impact Assessment confirmed that the cumulative impact is not considered a fatal flaw as the addition of the proposed Windy Plains WEF is not expected to contribute to the cumulative visual impact significantly. A few specialist studies found insignificant impacts or did not identify cumulative impacts for the various phases. Refer to Table H.

- In terms of **cumulative positive impacts**, the Socio-Economic impacts are considered **highly significant** (with enhancement) for the construction and operational phases, noting that if the timing of construction of different wind energy projects can smooth the employment levels and provide longer-term continuity of employment, this enhances the positive cumulative benefit. Furthermore, the socio-economic specialist notes that the projects considered in the cumulative impact assessment would cumulatively magnify the benefits and some impacts of the Windy Plains WEF, and the risk of distorting effects is present as the area is sparsely populated and there are limited economic opportunities. Refer to Table H.

Table G. Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative and Positive Impacts

Specialist Study	Construction		Operational		Decommissioning	
Direct Negative Impacts						
Agriculture	Low		Low		Low	
Terrestrial Biodiversity and Terrestrial Animal and Plant Species	Low		Low		Low	
Aquatic Biodiversity and Species	Very Low		Very Low		Very Low	
Avifauna Impact Assessment	Low		Moderate	Low	Low	
Visual Impact Assessment	Moderate	High	High		Moderate	
Heritage Impact Assessment (Archaeology)	Very Low	Moderate	Moderate		Very Low	Moderate
Palaeontological Impact Assessment	Low		No impact		No impact	
Socio-Economic Impact Assessment *Note: Construction phase socio-economic negative impacts are rated indirect.*	Very Low	Low	Insignificant and/or not identified and/or not applicable		Low	
Traffic Impact Assessment	Low	High	High		TIA to be undertaken at decommissioning	
Geotechnical Impact Assessment	Very Low		Very Low		Very Low	
Bat Impact Assessment	Very Low		Very Low	Low	Very Low	
Noise Impact Assessment	Very Low		Very Low		Very Low	
Direct Positive Impacts						
Socio-Economic Impact Assessment	Moderate		Low	High	Insignificant and/or not identified and/or not applicable	

Table H. Overall Impact Significance with the Implementation of Mitigation Measures for Cumulative Negative and Positive Impacts

Specialist Study	Construction	Operational	Decommissioning
Negative Impacts			
Agriculture	Low	Low	Low
Terrestrial Biodiversity and Terrestrial Animal and Plant Species	Low	Low	Low
Aquatic Biodiversity and Species	Very Low	Very Low	Very Low
Avifauna Impact Assessment	Low	Moderate / Low	Low
Visual Impact Assessment	Not Applicable	Very High	Not Applicable
Heritage Impact Assessment (Archaeology)	Low	Low	Insignificant and/or not identified and/or not applicable
Palaeontological Impact Assessment	Low	No impact	No impact
Socio-Economic Impact Assessment	Insignificant and/or not identified and/or not applicable	Insignificant and/or not identified and/or not applicable	Insignificant and/or not identified and/or not applicable
Traffic Impact Assessment	Not rated specifically, however the additional traffic volume does not compromise the level of service of the roads.	Not rated specifically, however the additional traffic volume does not compromise the level of service of the roads.	TIA to be undertaken at decommissioning
Geotechnical Impact Assessment	Low	Low	Low
Bat Impact Assessment	Insignificant and/or not identified and/or not applicable	Low	Insignificant and/or not identified and/or not applicable
Noise Impact Assessment	Insignificant and/or not identified and/or not applicable	Low	Insignificant and/or not identified and/or not applicable
Positive Impacts			
Socio-Economic Impact Assessment	High (depends on the timing of implementation)	High (depends on the timing of implementation)	Not identified

11. OVERALL ENVIRONMENTAL IMPACT ASSESSMENT AND REASONED OPINION FROM THE EAP

The information presented above contributes to this overall environmental impact statement and reasoned opinion from the EAP as to whether the proposed project should or should not be authorised, including any conditions that should be made in respect of the authorisation (should it be granted).

Based on the findings of the detailed specialist assessments and technical studies, which all recommend that the proposed project can proceed and should be authorised by the DFFE, the proposed project is considered to have an **overall Low to Very Low negative environmental impact, and an overall Low to High positive socio-economic impact** (with the effective implementation of respective mitigation and enhancement measures). The proposed project is considered to have an overall **Low to Very Low negative cumulative environmental impact, and an overall highly significant positive cumulative socio-economic impact** (with the implementation of respective mitigation and enhancement measures).

The proposed project will take place within the development footprint on the preferred and approved project site, as contemplated in the accepted Final Scoping Report. The development footprint and buildable areas largely avoid the “no-go” sensitive features identified and mapped by the respective specialists, where relevant and applicable, as discussed in Chapter 6 of the EIA Report. In some cases, linear infrastructure traverse areas of high or very high sensitivity, however the Aquatic Biodiversity, Terrestrial Biodiversity, and Avifauna specialists have confirmed that this is acceptable with recommended mitigation measures. In addition, from a terrestrial biodiversity and species perspective, there is some encroachment of non-linear infrastructure (i.e. Turbine and hardstand 25, and hardstand 28) within the 500 m buffer for the Riverine Rabbit, which is allocated Very High sensitivity by the Terrestrial Biodiversity specialist. To this end, the specialist recommended that micrositing should be considered for such non-linear infrastructure.

This EIA has considered the nature, scale and location of the development as well as the wise use of land. When considering the timing of this project, the IRP 2019 proposes to secure 17 800 MW of renewable energy capacity by 2030. It is the Project Applicant’s intention to bid this project in the future bidding rounds of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) or similar tender process. The project would contribute in the order of 350 MW renewable energy generation capacity to national energy generation, which has direct and indirect benefits for national economic growth, especially when noting that wind and solar energy are the lowest cost options for new electricity generation in South Africa.

The proposed project will be in line with and will be supportive of the objective of the Beaufort West Local Municipality Integrated Development Plan (IDP) in terms of leveraging the competitive advantages of the significant renewable energy resources in the region and creating more job opportunities. If approved by DFFE, the proposed WEF will provide skills development opportunities, create contractual and permanent employment in the area, and consequently provide catalytic opportunities for downstream economic development.

Section 24 of the Constitutional Act states that “*everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that prevents pollution*

and ecological degradation; promotes conservation; and secures ecologically sustainable development and use of natural resources while promoting justifiable economic and social development". Based on this, this EIA was undertaken to ensure that these principles are met through the inclusion of appropriate management and mitigation measures, and monitoring requirements. These measures will be undertaken to promote conservation by avoiding the sensitive environmental features present on site and through appropriate monitoring and management plans (refer to the EMPrs in Appendix H of the EIA Report).

The outcomes of this project therefore succeed in meeting the environmental management objectives of protecting the ecologically sensitive areas and supporting sustainable development and the use of natural resources, whilst promoting justifiable socio-economic development in the towns nearest to the project site. The findings of this EIA show that all natural resources will be used in a sustainable manner (i.e., this project is a renewable energy project, and the majority of the negative site specific and cumulative environmental impacts are considered to be of low to very low significance with mitigation measures implemented), while the benefits from the project will promote justifiable economic and social development. Furthermore, all the specialists recommended that the proposed project receive EA.

Taking into consideration the findings of the Scoping and EIA Process and given the national and provincial strategic requirements for infrastructure development, particularly from an electricity generation perspective, and based on the fact that the no-go areas have been predominantly avoided, it is the opinion of the EAP, that the benefits of the project outweigh the costs and that the project will make a positive contribution to sustainable infrastructure development in the affected local and district municipalities.

Provided that the specified mitigation measures and management actions are applied effectively throughout, it is recommended that the proposed project receive EA in terms of the 2014 NEMA EIA Regulations (as amended).

It is understood that the information contained in the EIA Report and appendices is sufficient to make a decision in respect of the activities applied for.

It is recommended that the EAs (should they be granted) be **valid for a period of 10 years**.

In addition, it is recommended that the EMPrs compiled as part of this EIA Process, included in Appendix H of the EIA Report, be approved concurrently in the EA (should it be granted). A detailed **final** layout of the WEF and associated infrastructure was identified during the EIA Phase and is included in Chapter 7 of the EIA Report, as well as Appendix C and the EMPrs.