

ALBANY WIND ENERGY FACILITY NEAR MAKHANDA (GRAHAMSTOWN), EASTERN CAPE PROVINCE

DEA Reference Number: 14/12/16/3/3/2/1131

FINAL SCOPING REPORT

PREPARED FOR:

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Report Title: Albany Wind Energy Facility: Scoping Report
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EAP Declaration

- I act as the independent environmental practitioner in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;
- All of the particulars furnished by me in this form are true and correct; and
- I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations.

ENVIRONMENTAL CONSULTANT	RESPONSIBILITY	DATE
Alan Carter	<i>Project Leader & The EAP</i>	July 2019
Caroline Evans	<i>Project Manager & Lead Author</i>	July 2019
Rosalie Evans	<i>Co-Author & GIS Mapping</i>	July 2019

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THE CONTENTS OF A SCOPING REPORT

CONTENT OF THE SCOPING REPORT (APPENDIX 2, NEMA EIA REGULATIONS)

2. (1) A scoping report must contain the information that is necessary for a proper understanding of the process, informing all alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include –

	CONTENT	SECTION OF THIS REPORT
(a) Details of –		
(i)	The EAP who prepared the Report.	CHAPTER 12
(ii)	The expertise of the EAP, including a <i>curriculum vitae</i> .	APPENDIX 2
(b) The location of the activity, including –		
(i)	The 21-digit Surveyor General code of each cadastral land parcel.	CHAPTER 2
(ii)	Where available, the physical address and farm name.	
(iii)	Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	
(c) A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is –		
(i)	A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken.	N/A
(ii)	On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	
(d) A description of the scope of the proposed activity, including –		
(i)	All listed and specified activities triggered.	CHAPTER 4
(ii)	A description of the activities to be undertaken, including associated structures and infrastructure.	CHAPTER 2
(e) A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.		CHAPTER 4
(f) A motivation for the need and desirability for the proposed development including the need and desirability for the activity in the context of the preferred location.		CHAPTER 3
(g) A full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including –		
(i)	Details of all alternatives considered.	CHAPTER 7
(ii)	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.	CHAPTER 9 & APPENDIX 1
(iii)	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	APPENDIX 1
(iv)	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	CHAPTER 5 & CHAPTER 6
(v)	The impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts – (aa) Can be reversed; (bb) May cause irreplaceable loss of resources; and (cc) Can be avoided, managed or mitigated.	CHAPTER 8
(vi)	The methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	
(vii)	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	
(viii)	The possible mitigation measures that could be applied and level of residual risk.	

(ix)	The outcome of the site selection matrix.	CHAPTER 7
(x)	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such.	
(xi)	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	
(h)	A plan of study for undertaking the environmental impact assessment process to be undertaken, including –	CHAPTER 10
(i)	A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity.	
(ii)	A description of the aspects to be assessed as part of the environmental impact assessment process.	
(iii)	Aspects to be assessed by specialists.	
(iv)	A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists.	
(v)	A description of the proposed method of assessing duration and significance.	
(vi)	An indication of the stages at which the competent authority will be consulted.	
(vii)	Particulars of the public participation process that will be conducted during the environmental impact assessment process.	
(viii)	A description of the tasks that will be undertaken as part of the environmental impact assessment process.	
(ix)	Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	
(i)	An undertaking under oath or affirmation by the EAP in relation to –	CHAPTER 12
(i)	The correctness of the information provided in the report.	
(ii)	The inclusion of comments and inputs from stakeholders and interested and affected parties.	
(iii)	Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	
(j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.	
(k)	Where applicable, any specific information required by the competent authority.	<i>None to date.</i>
(l)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	<i>None to date.</i>
(2) Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a scoping report, the requirements as indicated in such notice will apply.		

ENVIRONMENTAL IMPACT ASSESSMENT TEAM

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Caroline Evans, Project Manager & Lead Author
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SRK Consulting Engineers

**Traffic & Transport
Specialists**

Deon McQuirk, Traffic Specialist
Emonti Consulting Engineers

FINAL

GENERAL SITE INFORMATION

FARM NAME	SG DIGIT NUMBER	FARM NUMBER/PORITION	AREA (HA)
(no name)	C0020000000022300002	Farm 223, Remaining Extent & Portion 2	84.5
The Orchards	C0020000000023300003	Farm 233, Portion 3	477.0
(no name)	C0020000000023400001	Farm 234, Portion 1	37.3
Collingham Towers	C0020000000023500000	Farm 235, Remaining Extent	142.0
Tempe	C0020000000024000010	Farm 240, Portion 10	82.4
Tempe	C0020000000024000011	Farm 240, Portion 11	167.0
Tempe	C0020000000024000012	Farm 240, Portion 12	116.0
Tempe	C0020000000024000007	Farm 240, Portion 7	117.0
Tempe	C0020000000024000008	Farm 240, Portion 8	416.0
Tempe	C0020000000024000009	Farm 240, Portion 9	543.0
Tempe	C0020000000024100000	Farm 241, Remaining Extent	672.0
Grobbelers Kloof	C0020000000033400001	Farm 334, Portion 1	204.0
Grobbelers Kloof	C0020000000033400002	Farm 334, Portion 2	210.0
Grobbelers Kloof	C0020000000033400003	Farm 334, Portion 3	75.4
Grobbelers Kloof	C0020000000033400004	Farm 334, Portion 4	54.4
(no name)	C0020000000035800001	Farm 358, Portion 1	8.31
(no name)	C0020000000035800003	Farm 358, Portion 3	6.73
Allandale	C0020000000058100000	Farm 581	36.0
Miniplaas	C0020000000058200000	Farm 582	51.7
Nutwood	C0020000000058300000	Farm 583, Remaining Extent	51.8
(no name)	C0020000000059900000	Farm 599, Remaining Extent	111.0
(no name)	C0020000000060100000	Farm 601, Remaining Extent	125.0
Green Hills	C0020000000066300000	Farm 663, Remaining Extent	437.0
Green Hills	C0020000000066300001	Farm 663, Remaining Extent & Portion 1	616.7
Green Hills	C0020000000066300002	Farm 663, Remaining Extent & Portion 2	575.8
Green Hills	C0020000000066300003	Farm 663, Remaining Extent & Portion 3	34.2
Green Hills	C0020000000066300004	Farm 663, Remaining Extent & Portion 4	641.2
(no name)	C00200020000480700000	Erf 4807, Remaining Extent	192.0
TOTAL			6285.4 HA

TURBINE DESIGN SPECIFICATIONS

Number of turbines	Up to 66
Power output per turbine	4.5 MW
Facility output	Up to 297 MW
Turbine hub height	130 m
Turbine rotor diameter	170 m
Turbine blade length	85 m
Turbine tip height	215 m
Turbine platform area	3 900 m ²
Turbine road width	14 m to be rehabilitated to 8 m

TURBINE COORDINATES (INITIAL LAYOUT)

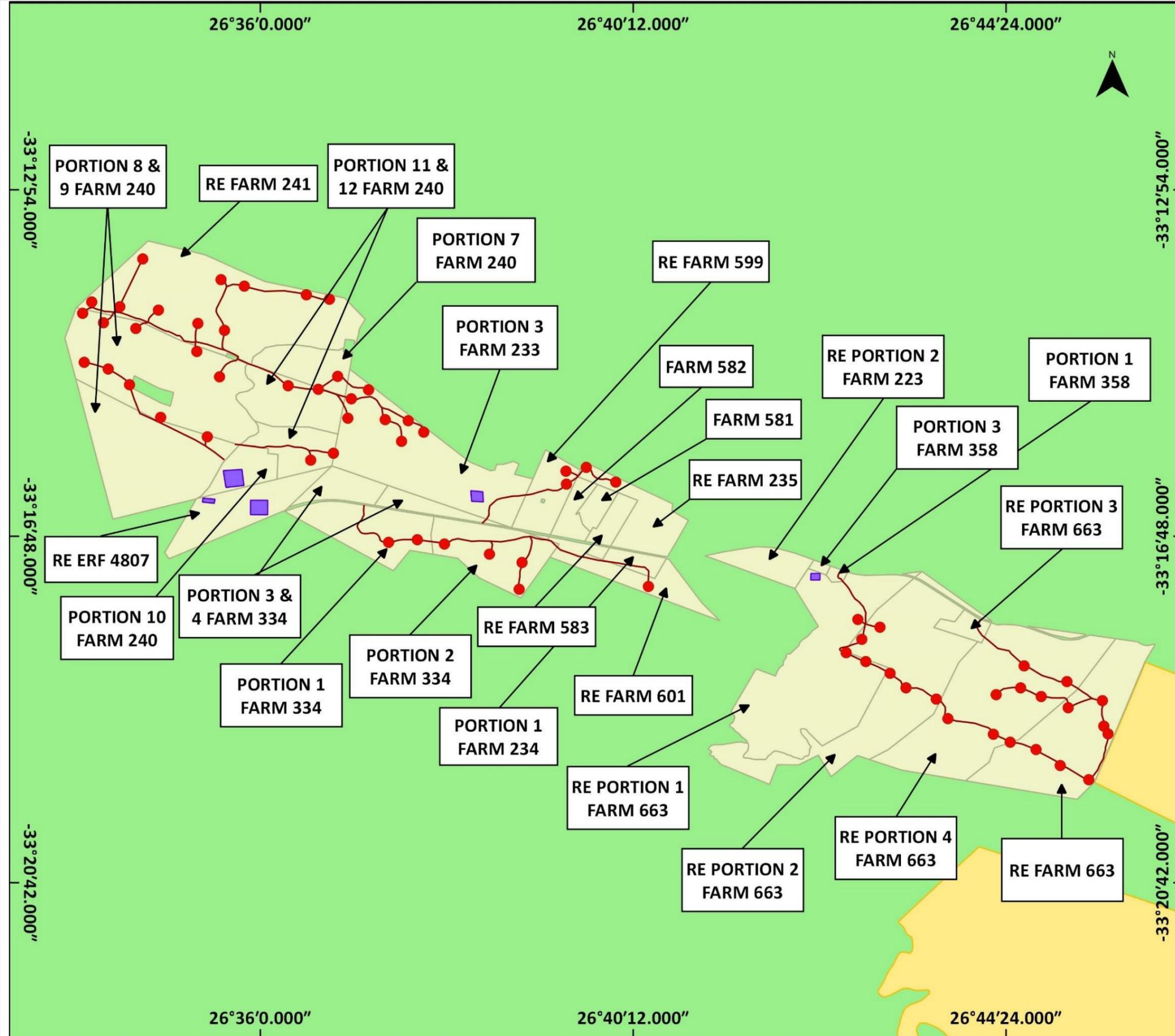
WTG 01	33°14'09.82" S	26°34'06.03" E
WTG 02	33°14'13.02" S	26°34'25.00" E
WTG 03	33°14'23.84" S	26°34'13.93" E
WTG 04	33°14'15.29" S	26°34'51.10" E
WTG 05	33°14'27.71" S	26°34'35.82" E
WTG 06	33°14'24.29" S	26°35'17.78" E
WTG 07	33°14'43.27" S	26°35'17.05" E
WTG 08	33°15'40.86" S	26°35'24.13" E
WTG 09	33°15'00.37" S	26°35'32.41" E
WTG 10	33°15'06.39" S	26°36'18.77" E
WTG 11	33°14'28.98" S	26°35'35.76" E
WTG 12	33°15'39.71" S	26°36'58.43" E
WTG 13	33°15'00.08" S	26°36'52.25" E
WTG 14	33°15'15.22" S	26°37'01.49" E
WTG 15	33°15'28.32" S	26°36'59.13" E
WTG 16	33°15'48.73" S	26°37'30.37" E
WTG 17	33°15'29.29" S	26°37'24.39" E
WTG 18	33°15'30.01" S	26°37'39.95" E
WTG 19	33°15'43.94" S	26°37'35.45" E
WTG 20	33°15'37.74" S	26°37'50.44" E
WTG 21	33°15'51.99" S	26°36'49.38" E
WTG 22	33°15'56.66" S	26°36'34.03" E
WTG 23	33°16'53.30" S	26°38'04.42" E
WTG 24	33°16'52.17" S	26°37'26.69" E
WTG 25	33°16'50.37" S	26°37'46.12" E
WTG 26	33°17'00.14" S	26°38'34.84" E
WTG 27	33°17'05.76" S	26°38'56.88" E
WTG 28	33°17'23.88" S	26°38'54.93" E
WTG 29	33°16'12.86" S	26°39'26.89" E
WTG 30	33°16'04.12" S	26°39'26.58" E
WTG 31	33°16'01.52" S	26°39'40.29" E
WTG 32	33°16'11.49" S	26°40'00.25" E
WTG 35	33°17'21.99" S	26°40'22.31" E
WTG 40	33°17'44.29" S	26°42'43.89" E
WTG 41	33°18'06.70" S	26°42'35.98" E
WTG 42	33°18'12.69" S	26°42'49.25" E
WTG 43	33°17'57.67" S	26°42'46.54" E
WTG 44	33°17'49.50" S	26°42'58.81" E
WTG 46	33°18'20.62" S	26°43'05.67" E
WTG 47	33°18'30.41" S	26°43'16.42" E
WTG 50	33°18'38.06" S	26°43'36.88" E
WTG 51	33°18'51.26" S	26°43'44.74" E
WTG 52	33°19'01.82" S	26°44'15.48" E
WTG 53	33°18'35.06" S	26°44'17.37" E
WTG 55	33°18'15.61" S	26°44'36.26" E
WTG 56	33°18'30.47" S	26°44'33.91" E
WTG 57	33°19'07.17" S	26°44'26.88" E
WTG 58	33°18'36.32" S	26°44'47.82" E
WTG 59	33°18'26.21" S	26°45'05.18" E
WTG 60	33°18'43.89" S	26°45'06.04" E
WTG 61	33°19'12.12" S	26°44'44.32" E
WTG 62	33°19'22.91" S	26°45'00.65" E
WTG 63	33°18'39.09" S	26°45'29.19" E

WTG 64	33°17'33.20" S	26°42'26.21" E
WTG 65	33°19'01.52" S	26°45'32.96" E
WTG 66	33°17'15.25" S	26°41'49.15" E
WTG 67	33°14'50.57" S	26°34'00.93" E
WTG 68	33°14'55.08" S	26°34'17.15" E
WTG 69	33°15'05.72" S	26°34'31.56" E
WTG 70	33°14'17.45" S	26°33'59.87" E
WTG 71	33°15'27.76" S	26°34'52.62" E
WTG 72	33°13'40.74" S	26°34'40.51" E
WTG 73	33°13'54.73" S	26°35'33.40" E
WTG 74	33°13'59.12" S	26°35'49.14" E
WTG 75	33°14'04.96" S	26°36'31.10" E
WTG 76	33°14'07.95" S	26°36'46.69" E

ONSITE MEASURED WIND PARAMETERS

Two (2) 85 m masts were installed on the 4th of November 2012 and decommissioned on the 5th of November 2013. A 120 m mast was then installed on the 3rd of March 2016 and it is still collecting data

CADASTRAL MAP



MAP DETAILS

Drawn by: Rosalie Evans
 Date: May 2019
 Datum: WGS84

SCALE

1:65000

PROJECT

ALBANY WIND ENERGY FACILITY

TITLE

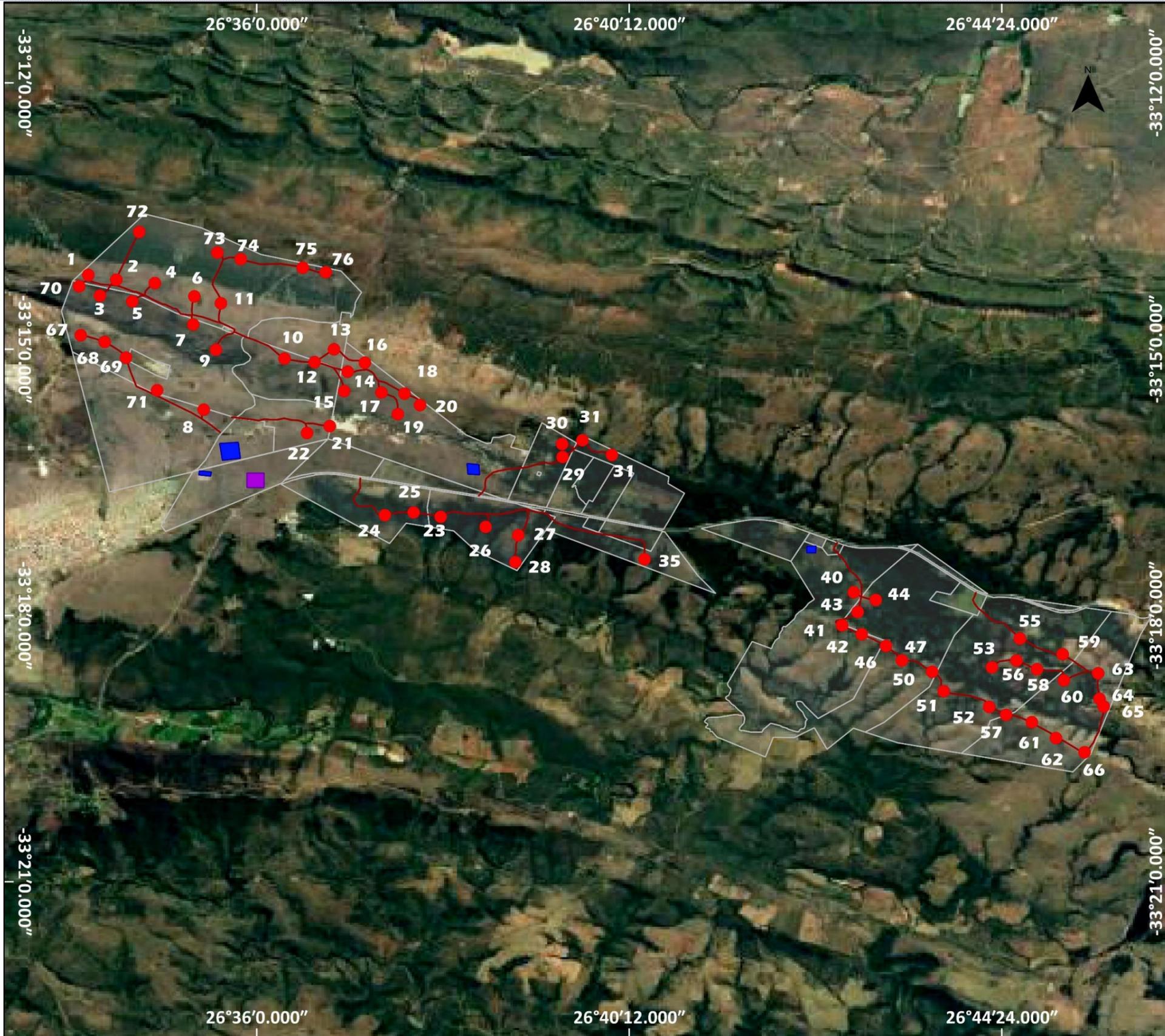
CADASTRAL MAP

LEGEND

- Proposed Turbine Layout
 - Proposed Internal Roads
 - Proposed Associated Infrastructure
 - Affected Properties
- Local Municipalities (2016)*
- Makana Local Municipality
 - Ndlambe Local Municipality

PREPARED FOR

LAYOUT MAP



MAP DETAILS

Drawn by: Rosalie Evans
 Date: May 2019
 Datum: WGS84

SCALE

1:65000

PROJECT

ALBANY WIND ENERGY FACILITY

TITLE

LAYOUT MAP

LEGEND

- Proposed Turbine Layout
- Proposed Internal Roads
- Proposed Batching and Construction Compound and Site Office
- Proposed Substations
- Affected Properties

PREPARED FOR

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FINAL

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

Albany Wind Power (Pty) Ltd. plans to develop, construct and operate a Wind Energy Facility (WEF) approximately seven kilometres (7 km) east of Makhanda/Grahamstown in the Eastern Cape Province. The project site is situated in the Makana Local Municipality (LM) which forms part of the Sarah Baartman District Municipality (DM). According to the data recorded by the applicant in the area, this project site appears to have favourable wind conditions to operate a wind farm.

The proposed Albany WEF will consist of up to sixty-six (66) turbines, each capable of generating approximately 4.5 Mega Watts (MW) of power. The WEF will also include a short powerline and switching station in order to connect the WEF to the existing Eskom substation (this powerline will be applied for in a separate environmental application process which will run parallel to the WEF application). The current layout allows for a maximum generating output of up to 297 MW, but the final design may be reduced dependant on the outcome of the specialist studies undertaken during this Environmental Impact Assessment (EIA) Process. The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover a maximum area of approximately 46.19 ha (post rehabilitation) depending on the final layout design should the project proceed to the construction phase.

CES has been appointed by Albany Wind Power as the Environmental Assessment Practitioner (EAP) to conduct the necessary EIA Process and secure the required Environmental Authorisation (EA) for the project in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) EIA Regulations (2014 and subsequent 2017 amendments).

1.2 SCOPING PHASE

The proposed project is currently in the Scoping Phase. The aim of this phase is to determine, in detail, the scope of the EIA required for the proposed activities. The primary objectives of the Scoping Phase, in accordance with the regulatory requirements, are to:

- Describe the nature of the proposed project;
- Enable preliminary identification and assessment of potential environmental issues or impacts to be addressed in the subsequent EIA Phase;
- Define the legal, policy and planning context for the proposed project;
- Describe important biophysical and socio-economic characteristics of the affected environment;
- Undertake a Public Participation Process (PPP) which provides all Interested and Affected Parties (I&APs) with opportunities to be involved;
- Identify feasible development alternatives which must be assessed in the EIA Phase;
- Identify the potential impacts of the proposed WEF; and
- Define the Plan of Study (PoS) for the EIA Phase.

1.3 NATURE AND STRUCTURE OF THIS REPORT

The structure of this report is based on Appendix 2 of GN R. 982 (326), of the EIA Regulations (2014 and subsequent 2017 amendments), which clearly specifies the required content of a Scoping Report.

This report is the first of a number of reports which will be produced during the EIA Process. This Scoping Report has been produced in accordance with the requirements, as stipulated in Appendix 2 of the EIA Regulations, which clearly outlines the content of a Scoping Report, and Chapter 6, Sections 39-44 which cover the activities necessary for a successful PPP.

1.3.1 STRUCTURE

The structure of this Scoping Report is as follows:

1. **Chapter 1: Introduction** – Provides background information on the proposed project, a brief description of the EIA process required in terms of the NEMA EIA Regulations and describes the key steps in the EIA process which have been undertaken thus far, and those that will be undertaken in the future. The details and expertise of the EAP who prepared this report are also provided in this Chapter.
2. **Chapter 2: Project Description** – Provides a description of the proposed development, the properties on which the development is to be undertaken and the location of the development within the properties. The technical details of the process to be undertaken are also provided in this Chapter.
3. **Chapter 3: Need and Desirability** – Provides the context of the renewable energy industry in South Africa and outlines how the Albany WEF is likely to contribute towards reaching sustainability goals regionally, nationally and internationally.
4. **Chapter 4: Relevant Legislation** – Identifies all the legislation and guidelines that have been considered in the preparation of this Scoping Report.
5. **Chapter 5 & Chapter 6: Description of the affected environment** – Provides a brief overview of the bio-physical and socio-economic characteristics of the site and its environs which could be affected by the proposed development. This information is compiled largely from published information and available spatial data, but it has been supplemented by information which was gathered during site investigations.
6. **Chapter 7: Alternatives** - Provides a brief discussion of the feasible and reasonable alternatives to the proposed project which have been identified and considered, some of which will be investigated further in the EIA Phase.
7. **Chapter 8: Manner in which the environment could be affected** – Provides a description of the key issues which have been identified by the project team as well as through discussions with I&APs thus far in the Scoping Phase, which will be assessed during the EIA Phase.
8. **Chapter 9: Public Participation Process** - Provides details of the Public Participation Process (PPP) which has been conducted, including:
 - The measures undertaken thus far to notify I&APs of the application;
 - Proof that notice boards, advertisements and notices, notifying potential I&APs of the application have been displayed, placed or distributed;
 - A list of all persons and organisations which have been identified and registered in terms of Regulation 57 as I&APs in relation to the application.
9. **Chapter 10: Plan of Study (PoS)** – Sets out the proposed approach to the environmental impact assessment of the proposed project including:

- A description of the scope of work that will be undertaken as part of the EIA Phase, including any specialist reports or specialised processes, and the manner in which the described scope of work will be undertaken;
- An indication of the stages at which the competent authority will be consulted;
- A description of the proposed methodology for assessing the environmental issues and alternatives, including the option of not proceeding (no-go alternative) with the proposed development;
- Particulars of the PPP which will be conducted during the EIA Phase; and
- Any specific information required by the authority.

10. **Chapter 11: Conclusions** – This chapter consists of the concluding remarks of the Scoping Phase and any specific recommendations for the EIA Phase.

11. **Chapter 12: EAP Affirmation**

12. **Appendices:** Containing all supporting information

1.3.2 ASSUMPTIONS AND LIMITATIONS

This report is based on currently available information and, as a result, the following limitations and assumptions are implicit–

- This report is based on a project description which has been taken from design specifications for the proposed wind farm that have not yet been finalised, and which are likely to undergo a number of refinements before it can be regarded as definitive. A project description based on the final design will be provided during the EIA Phase.
- Descriptions of the natural and social environments are based on limited fieldwork and available literature. More information will be provided during the EIA Phase, once the specialist studies have been undertaken.
- The preliminary turbine site layout and associated infrastructure will be presented in the EIA Phase and subject to the necessary specialist assessments. It is anticipated that this preliminary layout will be further refined as per the outcomes of these studies and overall EIA findings.

1.4 DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

In fulfilment with the legislative requirements, the details of the Environmental Assessment Practitioner (EAP) and the environmental team that prepared this Scoping Report are provided below.

1.4.1 DR ALAN CARTER (THE EAP & PROJECT LEADER)

Dr Alan Carter is an Executive and the East London Branch Manager at CES. He has extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He is a member of the American Institute of Certified Public Accountants (licensed in Texas) and holds a PhD in Plant Sciences. He is also certified ISO14001 EMS Auditor with the American National Standards Institute. Alan has been responsible for leading and managing numerous and varied consulting projects over the past 25 years. He is a registered professional with the South African Council for Natural Scientific Professionals (SACNASP) and through Environmental Assessment Practitioners Association of South Africa (EAPASA).

1.4.2 Ms CAROLINE EVANS (PROJECT MANAGER & LEAD AUTHOR)

Caroline is a Senior Environmental Consultant with more than 5.5 years' experience and she is based in the Grahamstown branch. She holds a BSc with majors in Environmental Science (distinction) and Zoology, as well as a BSc (Hons) in Environmental Science (distinction) both from Rhodes University. Her undergraduate degree included both commerce and natural sciences. Caroline's honours dissertation evaluated the economic impacts of degradation of the xeric subtropical thicket through farming practices, focusing on the rehabilitation potential of the affected areas in terms of carbon tax. She has a broad academic background including statistics, economics, management, climate change, wetland ecology, GIS, rehabilitation ecology, ecological modelling and zoology. Caroline has a strong focus on renewable energy and South African policy and legislation related to development.

1.4.3 Ms ROSALIE EVANS (CO-AUTHOR & GIS MAPPING)

Rosalie is a Senior Environmental Consultant with 5 years' experience and she is based in the Port Elizabeth branch. She holds a BA degree in Social Dynamics with majors in Geography and Psychology as well as a BA Honours degree in Geography and Environmental Studies, both from Stellenbosch University. Rosalie's honours dissertation analysed the role of small grains in soil carbon sequestration in the agricultural sector of the Western Cape. Rosalie completed the Introduction to Environmental Impact Assessment Procedure Short Course by Coastal & Environmental Services and the Department of Environmental Science Rhodes University as well as the Estuary Management Short Course by Nelson Mandela University (NMU). In addition, Rosalie is a member of the Land Rehabilitation Society of Southern Africa (LaRSSA) and a member of the International Association for Impact Assessment (IAIA). Her focuses include the general Environmental Impact Assessment (EIA) process, the Public Participation Process, NEMA Section 24(G) Applications and associated rectification reports, Water Use Applications and accompanying Risk Assessments, GIS Mapping, Agriculture and Soils Assessments, Estuarine Assessments and Tourism Assessments.

PLEASE FIND THE CURRICULUM VITAE ATTACHED AS APPENDIX B.

2 PROJECT DESCRIPTION

2.1 PROPOSED ACTIVITY

Albany Wind Power is proposing the development of the Albany WEF which will consist of up to sixty-six (66) turbines, each capable of generating approximately 4.5 Mega Watts (MW) of power. The current layout allows for a maximum generating output of up to 297 MW, however, the final design will be reduced based on the outcome of the specialist studies undertaken during the EIA Process. The proposed turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover an area of approximately 55.39 ha depending on final layout design should the project proceed to the construction phase.

In summary, the proposed Albany WEF includes (please see Figure 2-1):

- Up to sixty-six (66) turbines with a generation capacity of up to 4.5 MW each resulting in a nominal power output of up to 297 MW;
- The proposed WEF will include turbines with a rotor diameter of up to 170 m, a hub height of up to 130 m and blade length of up to 85 m;
- Internal access roads of between 8 m (during operation) and 14 m (during construction, to be partly rehabilitated) wide to each turbine;
- Existing roads will be used as far as possible. However, where required, internal access roads will be constructed between the turbines;
- Three (3) connecting substations (switching stations):
 - Two (2) Switching stations to connect the WEF to the powerline (powerline to be assessed in separate application); and
 - WEF IPP 132/33 kV Substation.
- Foundations with an area of up to 550 m² for each turbine;
- A primary laydown area of approximately 3 900 m² adjacent to each turbine;
- Temporary infrastructure including a site camp and a laydown area of approximately 30 m² per turbine (all to be rehabilitated post construction);
- A 25 m² area for switchgear and/or transformer at each turbine;
- Medium voltage cabling between turbines and the switching stations, to be laid underground where technically feasible;
- An up to 100 000 m² for the substation, battery storage and site office area; and
- Batching plant, temporary laydown area and construction compound area of approximately 90 000 m².

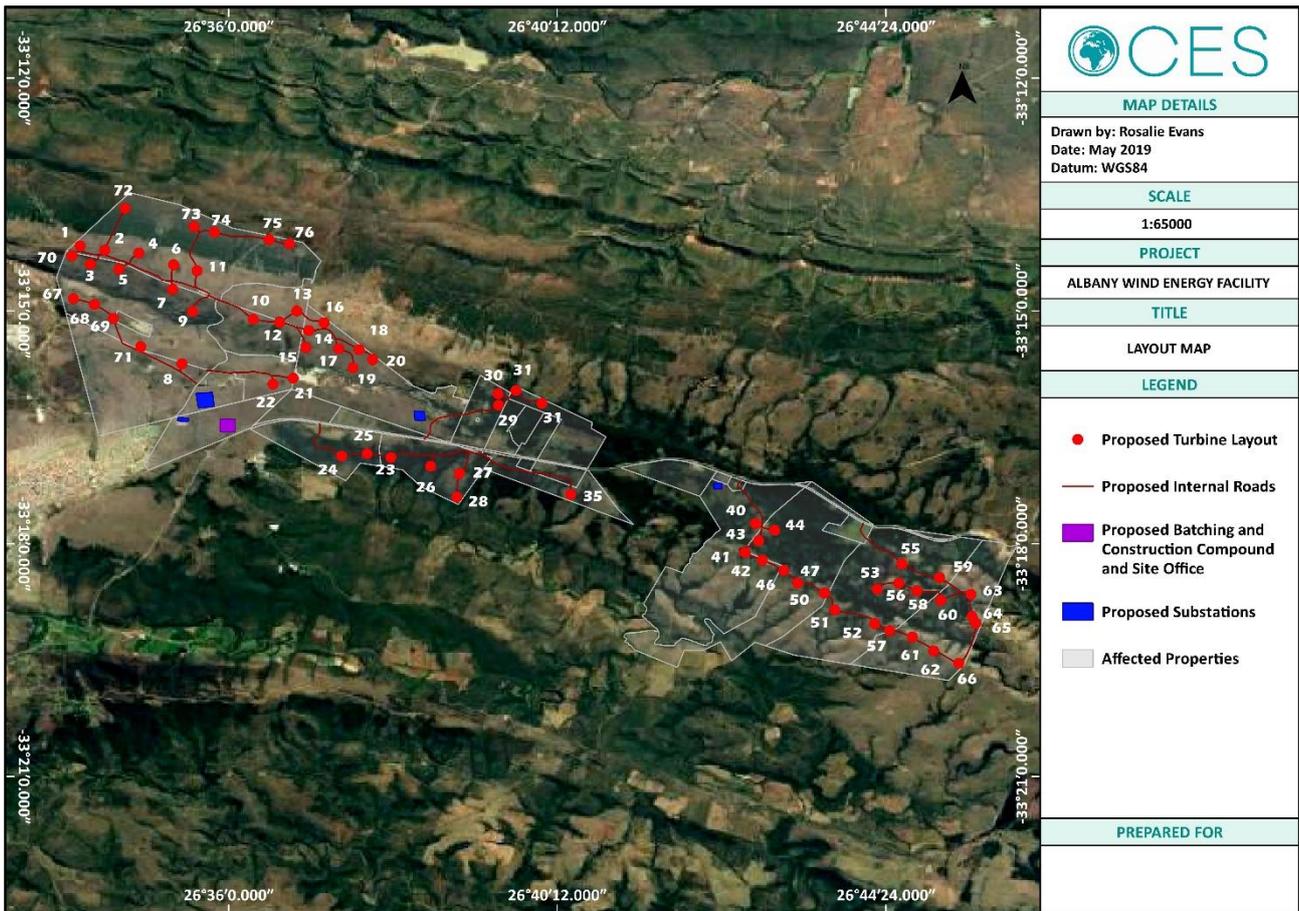


Figure 2-1: Albany WEF Layout Map.

The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will potentially cover total combined area of approximately 55.39 ha during the construction phase. This footprint will be reduced through rehabilitation, resulting in a maximum final total combined footprint of 46.19 ha.

The footprint of the facility is calculated as follows:

Table 2-1: Preliminary Construction Footprint of the Albany WEF.

FACILITY COMPONENT	CONSTRUCTION FOOTPRINT	FINAL FOOTPRINT AFTER REHABILITATION
Primary laydown area (crane and blade laydown)	<u>TOTAL</u> 3 900 m ² x 66 turbines = 257 400 m ² which equates to 25.74 ha	<u>TOTAL</u> 3 900 m ² x 66 turbines = 257 400 m ² which equates to 25.74 ha
	Temporary Laydown Area, Batching Plant and Construction Compound	<u>TOTAL</u> 90 00 m ² which equates to 9.00 ha
Turbine Foundation	<u>TOTAL</u> 550 m ² x 66 turbines = 36 300 m ² which equates to 3.63 ha	<u>TOTAL</u> 550 m ² x 66 turbines = 36 300 m ² which equates to 3.63 ha
Temporary Infrastructure (including a site camp and a laydown area)	<u>TOTAL</u> 30 m ² x 66 = 1 980 m ² which equates to 0.20 ha	<u>TOTAL</u> 0 m ² x 66 = 0 m ² which equates to 0.00 ha
Switchgear and/or Transformer	<u>TOTAL</u> 25 m ² x 66 = 1 650 m ²	<u>TOTAL</u> 25 m ² x 66 = 1 650 m ²

	which equates to 0.17 ha	which equates to 0.17 ha
Two Connecting Switching Stations	<u>TOTAL</u> 66 500 m ² which equates to 6.65 ha	<u>TOTAL</u> 66 500 m ² which equates to 6.65 ha
Substation, Battery Storage and Site Office area	<u>TOTAL</u> 100 000 m ² which equates to 10.00 ha	<u>TOTAL</u> 100 000 m ² which equates to 10.00 ha
TOTAL FOOTPRINT	55.39 ha <i>of clearing needed for the <u>construction phase</u> of the development of the proposed WEF</i>	46.19 ha <i>of clearing remaining during the post-construction <u>operational phase</u> (after rehabilitation)</i>

2.2 PROJECT LOCALITY

The project area is potentially 6285.4 hectares (ha) in extent (Table 2-3), with a total development footprint of 55.39 ha (pre-rehabilitation) and 46.19 ha (post-rehabilitation) depending on the final layout design. It is located in the Makana LM area and it is situated seven kilometres (7 km) to the east of Makhanda. The N2 freeway and the R67 road connect the study area to Makhanda. The direction and distance from the project area to some of the nearest towns are indicated in Table 2-2 below:

Table 2-2: Towns in the vicinity of the Albany WEF.

TOWN NAME	APPROXIMATE DISTANCE	DIRECTION
Makhanda	7 km	West
Alicedale	62 km	West
Salem	35 km	South
Riebeeck East	53 km	West
Paterson	83 km	South-west
East London	147 km	East
Port Alfred	63 km	South-east

Table 2-3 indicates the property portions and farm names associated with the Albany WEF project area. The proposed project is situated on approximately 6 300 ha, consisting of 28 farm portions.

Table 2-3: Albany WEF Properties.

FARM NAME	SG DIGIT NUMBER	FARM NUMBER/PORCION	AREA (HA)
(no name)	C00200000000022300002	Farm 223, Remaining Extent & Portion 2	84.5
The Orchards	C00200000000023300003	Farm 233, Portion 3	477.0
(no name)	C00200000000023400001	Farm 234, Portion 1	37.3
Collingham Towers	C00200000000023500000	Farm 235, Remaining Extent	142.0
Tempe	C00200000000024000010	Farm 240, Portion 10	82.4
Tempe	C00200000000024000011	Farm 240, Portion 11	167.0
Tempe	C00200000000024000012	Farm 240, Portion 12	116.0
Tempe	C00200000000024000007	Farm 240, Portion 7	117.0
Tempe	C00200000000024000008	Farm 240, Portion 8	416.0
Tempe	C00200000000024000009	Farm 240, Portion 9	543.0
Tempe	C00200000000024100000	Farm 241, Remaining Extent	672.0
Grobbelers Kloof	C00200000000033400001	Farm 334, Portion 1	204.0
Grobbelers Kloof	C00200000000033400002	Farm 334, Portion 2	210.0
Grobbelers Kloof	C00200000000033400003	Farm 334, Portion 3	75.4

Grobbelers Kloof	C0020000000033400004	Farm 334, Portion 4	54.4
(no name)	C0020000000035800001	Farm 358, Portion 1	8.31
(no name)	C0020000000035800003	Farm 358, Portion 3	6.73
Allandale	C0020000000058100000	Farm 581	36.0
Miniplaas	C0020000000058200000	Farm 582	51.7
Nutwood	C0020000000058300000	Farm 583, Remaining Extent	51.8
(no name)	C0020000000059900000	Farm 599, Remaining Extent	111.0
(no name)	C0020000000060100000	Farm 601, Remaining Extent	125.0
Green Hills	C0020000000066300000	Farm 663, Remaining Extent	437.0
Green Hills	C0020000000066300001	Farm 663, Remaining Extent & Portion 1	616.7
Green Hills	C0020000000066300002	Farm 663, Remaining Extent & Portion 2	575.8
Green Hills	C0020000000066300003	Farm 663, Remaining Extent & Portion 3	34.2
Green Hills	C0020000000066300004	Farm 663, Remaining Extent & Portion 4	641.2
(no name)	C00200020000480700000	Erf 4807, Remaining Extent	192.0
TOTAL			6285.4 HA

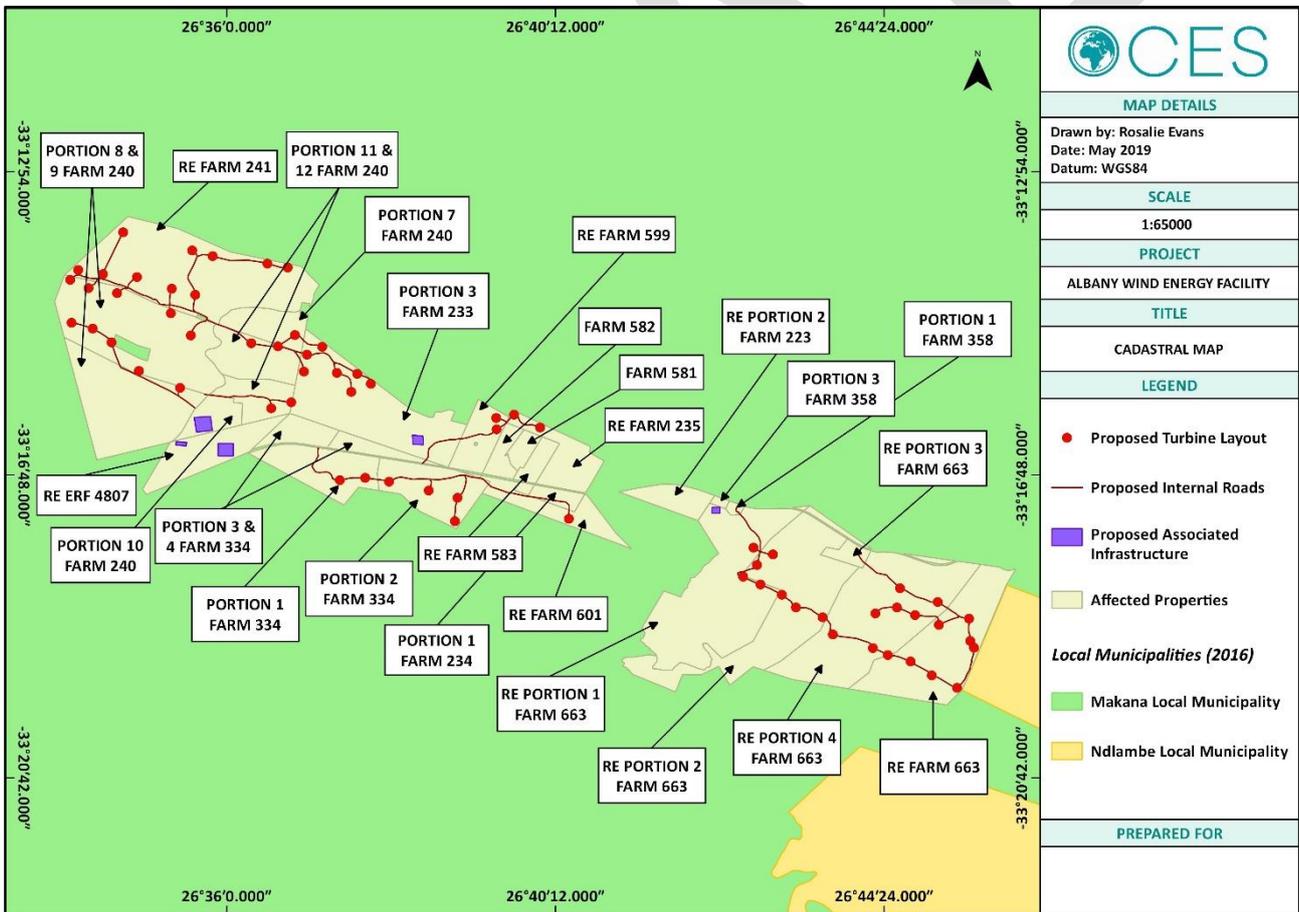


Figure 2-2: Cadastral Map of the Affected Properties within the Proposed Site.

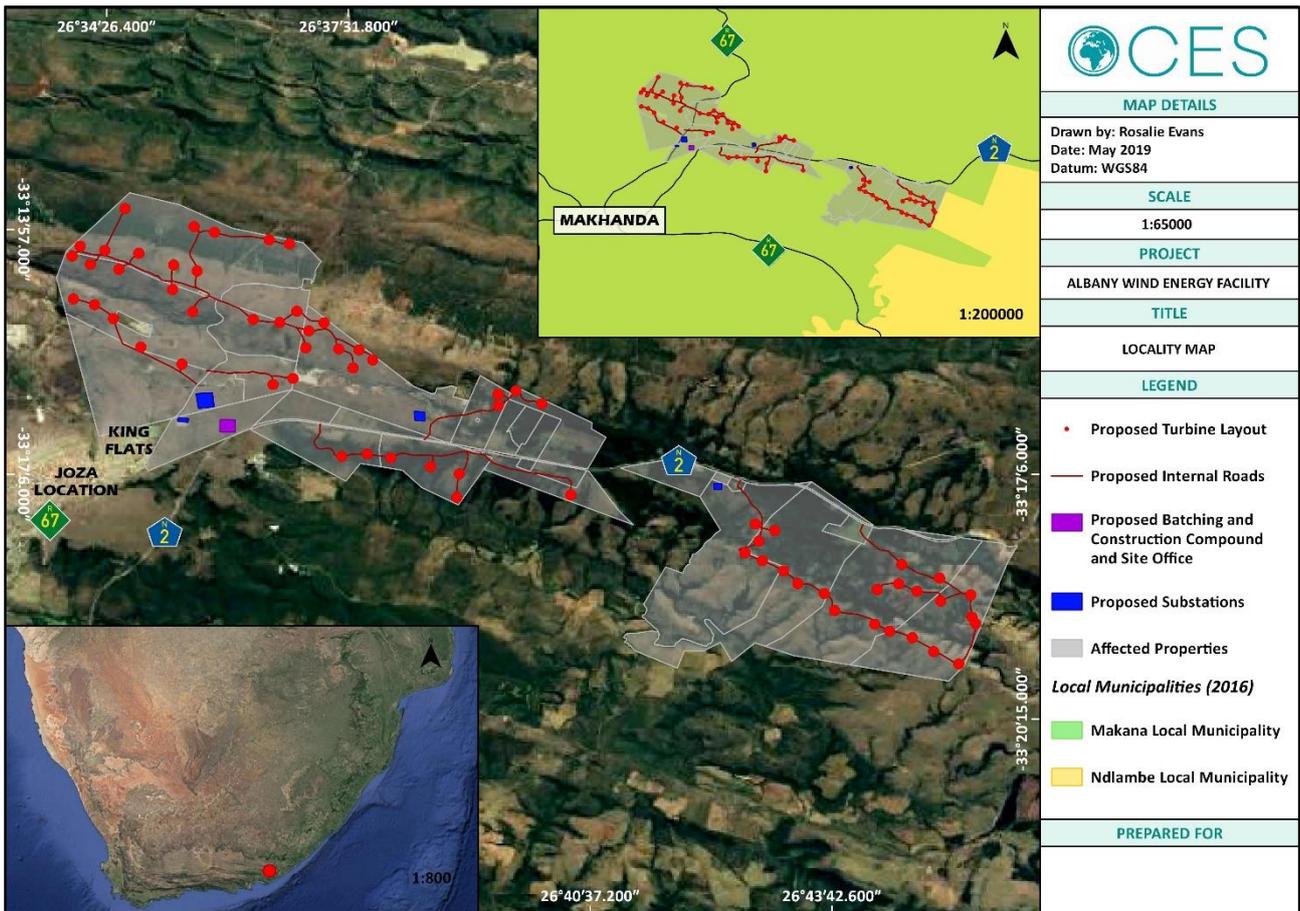


Figure 2-3: Locality Map of the Proposed Albany WEF Site.

2.3 ENVIRONMENTAL AUTHORISATIONS IN SOUTH AFRICA

The regulation and protection of the environment within South Africa, occurs mainly through the application of various items of legislation, within the regulatory framework of the Constitution (Act No. 108 of 1996).

The primary legislation regulating EIAs within South Africa is the NEMA (Act No. 107 of 1998 and subsequent amendments). The NEMA makes provision for the Minister of Environmental Affairs to identify activities which may not commence prior to authorisation from either the Minister or the provincial Member of the Executive Council (“the MEC”). In addition to this, the NEMA also provides for the formulation of regulations in respect of such authorisations.

The NEMA EIA Regulations (2014 and subsequent 2017 amendments) allow for a Basic Assessment (BA) Process for activities with limited environmental impact (listed in GN R. 983/GN R. 327 & GN R. 985/GN R. 324) and a more rigorous two- tiered approach to activities with potentially greater environmental impact (listed in GN R. 984/GN R. 325). This two-tiered approach includes both a Scoping and EIA Process. The proposed Albany WEF project activities trigger the need for a Scoping and EIA Process in accordance with the NEMA EIA Regulations (2014 and subsequent 2017 amendments) Listing Notices 1, 2 and 3 and published in Government Notices No. R. 983 (GN R. 327), R. 984 (GN R. 325) and R. 985 (GN R. 324) respectively. The listed activities which are being applied for are provided in Table 2-4 below.

Table 2-4: Listed activities triggered by the proposed Albany WEF.

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
GN R. 983 (BASIC ASSESSMENT)	11	The development of facilities or infrastructure for the transmission and distribution of electricity– (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	33kV underground electrical cables will be laid to transmit electricity generated by the wind turbines to the onsite switching stations.
	12	The development of – (ii) Infrastructure or structures with a physical footprint of 100 square metres or more. Where such development occurs– (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	This relates to the proposed switching station, laydown areas and construction compound area which may be constructed within 32m of watercourse. The final siting of this infrastructure will be refined throughout the process, during which this listed activity may become redundant.
	14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic meters.	This relates specifically to aspects such as storage of transformer oil at the switching station sites and at the maintenance storage facility during operations. Also small volumes of other chemicals may be stored during construction (including diesel and petrol) which may trigger this activity. The final layout will determine the volumes needed on site, but at this stage a rough estimate can be calculated as follows: the construction period is expected to last for approximately 24 months, during this time approximately 175m ³ of chemicals which can be classified as dangerous goods will be used. The operational phase is expected to require approximately 200m ³ of chemicals which can be classified as dangerous goods. This equates to a total of approximately 375m ³ of dangerous goods for the lifespan of the proposed WEF.

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
	19	The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	This relates specifically to low level crossings that may be required during road construction or upgrading throughout the WEF road network.
	24	The development of a road– (ii) A road with a reserve wider the 13.5 metres, or where no reserve exists where the road is wider than 8 metres.	The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational footprint of 8m.
	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (ii) Will occur outside an urban area, where the total land to be developed is bigger than 1 hectares.	The proposed development will entail the rezoning of land from agriculture to special industrial. The total footprint of the proposed WEF (at this stage) will be approximately 46ha in extent (post-mitigation).
	47	The expansion of facilities or infrastructure for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.	Existing infrastructure may be used (where technically feasible) as connection points from turbines to switching stations. Where this is the case the footprint of the existing infrastructure may be increased.
	56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre– (ii) Where no road reserve exists, where the existing road is wider than 8 metres	The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
			during the construction phase and will be rehabilitated to have a final operational footprint of 8m.
GN R. 984 (FULL SCOPING & EIR)	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.	The proposed Albany WEF will include the construction of approximately 66 turbines with an output capacity of up to 4.5MW each, resulting in a total output capacity of up to 297MW. This wind energy facility is classified as a renewable energy facility.
	9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	Connecting powerlines (connecting the turbines to switching stations) may need to be stepped up to more than 275kV in places. This listed activity may become redundant once the final layout has been informed by specialist input.
	15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed development will include the clearing of indigenous vegetation. The total footprint of the proposed WEF (at this stage) will be approximately 55ha in extent (pre-mitigation) and 46ha in extent (post-mitigation).
GN R. 985 (BASIC ASSESSMENT)	4 a. i. (ee) (gg)	The development of a road wider than 4 metres with a reserves less than 13.5 metres. (a) In Eastern Cape: i. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere	The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational footprint of 8m. The proposed site is situated in CBA areas. <i>***NOTE: Please note that the newly revised and updated ECBCP has not been formally gazetted at this stage, but it is likely to be</i>

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
		<p>reserve, excluding disturbed area</p>	<p><i>formalised within the next few months. Due to the fact that this will now be a formal Biodiversity Plan for the Eastern Cape we have included it as part of the listed activities.</i></p> <p>The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</p>
	<p>10 a. i. (ee) (gg)</p>	<p>The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>(a) In Eastern Cape:</p> <p>i. Outside urban areas, in:</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans***</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area</p>	<p>This relates specifically to aspects such as storage of transformer oil at the switching station sites and at the maintenance storage facility during operations. Also small volumes of other chemicals may be stored during construction (including diesel and petrol) which may trigger this activity.</p> <p>The final layout will determine the volumes needed on site, but at this stage a rough estimate can be calculated as follows: the construction period is expected to last for approximately 24 months, during this time approximately 175m³ of chemicals which can be classified as dangerous goods will be used. The operational phase is expected to require approximately 200m³ of chemicals which can be classified as dangerous goods. This equates to a total of approximately 375m³ of dangerous goods for the lifespan of the proposed WEF. This will be refined as the layout is refined during the EIA process.</p> <p>The proposed site is situated in CBA areas.</p> <p><i>***NOTE: Please note that the newly revised and updated ECBCP has not been formally gazetted at this stage, but it is likely to be</i></p>

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
			<p><i>formalised within the next few months. Due to the fact that this will now be a formal Biodiversity Plan for the Eastern Cape we have included it as part of the listed activities.</i></p> <p>The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</p>
	<p>12 a. ii.</p>	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(a) In Eastern Cape: ii. Within critical biodiversity areas identified in bioregional plans</p>	<p>The proposed development will include the clearing of indigenous vegetation. The total footprint of the proposed WEF (at this stage) will be approximately 46ha in extent.</p> <p>The proposed site is situated in CBA areas.</p> <p><i>***NOTE: Please note that the newly revised and updated ECBCP has not been formally gazetted at this stage, but it is likely to be formalised within the next few months. Due to the fact that this will now be a formal Biodiversity Plan for the Eastern Cape we have included it as part of the listed activities.</i></p>
	<p>14 ii. a. i. (ff) (hh)</p>	<p>The development of– ii. Infrastructure or structures with a physical footprint of 10 square metres or more Where such development occurs– (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse.</p> <p>(a) In Eastern Cape: i. Outside urban areas, in:</p>	<p>This relates to the proposed switching station, laydown areas and construction compound area which may be constructed within 32m of watercourse. The final siting of this infrastructure will be refined throughout the process, during which this listed activity may become redundant.</p> <p>The proposed site is situated in CBA areas. <i>***NOTE: Please note that the newly revised and updated ECBCP has not been formally gazetted at this stage, but it is likely to be formalised within the next</i></p>

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
		<p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area</p>	<p>few months. Due to the fact that this will now be a formal Biodiversity Plan for the Eastern Cape we have included it as part of the listed activities.</p> <p>The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</p>
	<p>18 a. i. (ee) (gg)</p>	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</p> <p>(a) In Eastern Cape:</p> <p>i. Outside urban areas, in:</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area</p>	<p>The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational footprint of 8m.</p> <p>The proposed site is situated in CBA areas. ***NOTE: Please note that the newly revised and updated ECBCP has not been formally gazetted at this stage, but it is likely to be formalised within the next few months. Due to the fact that this will now be a formal Biodiversity Plan for the Eastern Cape we have included it as part of the listed activities.</p> <p>The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</p>

The Applicant, or the EAP on behalf of the Applicant, is initially required to submit a report detailing the Scoping Phase (Scoping Report – this report), and set out the ToR for the EIA Process (Plan of Study for EIA). This is then followed by a report detailing the EIA Phase, the Environmental Impact Report (EIR). The Competent Authority will issue a final decision subsequent to their review of the Final EIR.

The Competent Authority that must consider and decide on the application for authorisation in respect of the activities, listed in Table 2-4 above, is the National Department Environmental Affairs (DEA) as the Department has reached an agreement with all Provinces that all electricity-related projects, including generation, transmission and distribution, are to be submitted to the National DEA, irrespective of the legal status of the Applicant. This decision has been made in terms of Section 24(C)(3) of the NEMA (Act No. 107 of 1998 and subsequent amendments).

In addition to the requirements for an Environmental Authorisation (EA) in terms of the NEMA, there may be additional legislative requirements that need to be considered prior to commencing with the activity, these include but are not limited to:

- National Heritage Resources Act (Act No. 25 of 1999);
- National Water Act (Act No. 36 of 1998);
- Civil Aviation Act (Act No. 74 of 1962) as amended;
- National Environmental Management Biodiversity Act (Act No. 10 of 2004);
- National Forests Act (Act No. 84 of 1998); and the
- Eastern Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974).

These are discussed in detail in Chapter 4 of this report.

2.4 TECHNICAL: PROPOSED ACTIVITY

2.4.1 WIND ENERGY FACILITY (WEF)

The proposed Albany WEF will consist of up to sixty-six (66) wind turbines (maximum output of 4.5 MW output per turbine), for a total combined maximum output capacity of 297 MW.

Wind energy is a form of solar energy. Winds are caused by the uneven heating of the atmosphere by the sun, the irregularities of the earth's surface, and the rotation of the earth. Wind flow patterns are modified by the earth's terrain, bodies of water, and vegetation. This wind flow or motion energy (kinetic energy) can be used for generating electricity. The term “wind energy” describes the process by which wind is used to generate mechanical power or electricity. Wind turbines convert the kinetic energy in the wind into mechanical power and a generator can then be used to convert this mechanical power into electricity. The components of a typical wind turbine subsystem are depicted by Figure 2-4 below:

- A rotor, or blades, which are the portion of the wind turbine that collect energy from the wind and convert the wind's energy into rotational shaft energy to turn the generator. The speed of rotation of the blades is controlled by the nacelle, which has the ability to turn the blades to face into the wind (‘yaw control’) and change the angle of the blades (‘pitch control’) to make the most use of the available wind. The maximum rotor diameter for the Albany WEF turbines is approximately 170 m.
- A nacelle (enclosure) containing a drive train, usually including a gearbox (some turbines do not require a gearbox) and a generator. The generator converts the turning motion of a wind turbine’s blades (mechanical energy) into electricity. Inside this component, coils of wire are rotated in a magnetic field to produce electricity. The nacelle is also fitted with brakes, so that the turbine can be switched off during very high winds, such as during storm events. This prevents the turbine from being damaged. All this

information is recorded by computers and is transmitted to a control centre, which means that operators don't have to visit the turbine very often, but only occasionally for mechanical monitoring.

- A tower, to support the rotor and drive train the tower, on which a wind turbine is mounted is not only a support structure, but it also raises the wind turbine so that its blades safely clear the ground and can reach the stronger winds at higher elevations. The tower must also be strong enough to support the wind turbine and to sustain vibration, wind loading, and the overall weather elements for the life time of the turbine. The maximum hub height of the Albany WEF turbines is approximately 130 m.
- Electronic equipment such as controls, electrical cables, ground support equipment, and interconnection equipment.

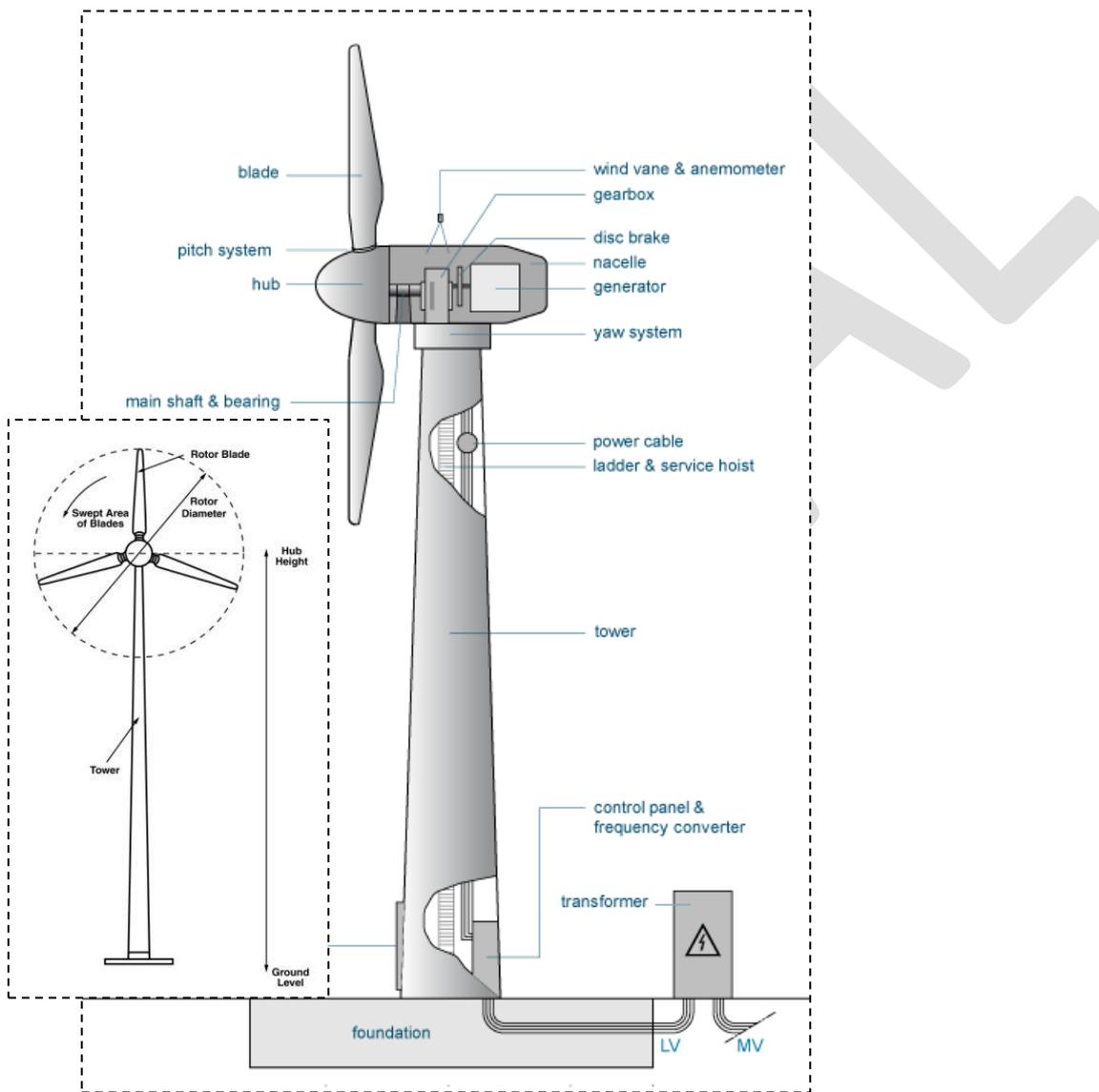


Figure 2-4. Illustrations of the main components of a typical wind turbine. *Note that the transformer would typically be inside the tower (probably at the base). Sources: www.newen.ca and www.soleai.com.

2.4.2 STAGES OF WIND FARM DEVELOPMENT

Typically, building a wind farm is divided into four (4) phases, namely:

- Preliminary civil works;

- Construction;
- Operation; and
- Decommission.

A) PRELIMINARY CIVIL WORKS

Prior to the commencement of the main construction works, the Contractor will undertake vegetation clearance and site establishment works. The site establishment works may include the construction of one, or more, temporary construction compounds and laydown areas and the connection of services such as power and water to these compounds.

B) CONSTRUCTION

The construction footprint will include the platforms, or “crane pads” required to construct the wind turbines, new or upgraded access roads, lay-bys, component storage areas, turning heads and a substation to evacuate the electricity generated to the municipal or national grid.

A typical platform for the assembly of the crane and construction of the turbine is shown in Figure 2-5. These platforms will be connected by access roads with the following requirements:

- Minimum of 8 m width (5 m running width and 1.5 m verge either side) on straight sections with widening required on corners;
- Should a “crawler” type crane be used, then road widths of up to 14 m on straight sections may be required, of which 8 m would be retained for the life of the wind farm;
- Typical 300 mm deep road section;
- Maximum 10% vertical gradient on gravel roads;
- Turning heads provided within 200 m of each crane pad (refer to Figure 2-4); and
- Passing places of c. 50 m length and 5 m width located approximately every 1 km.

The construction footprint required will be greater than the dimensions specified above to allow for construction of the wind farm infrastructure. These areas are used temporarily during the construction period – including temporary construction compound and road verges – and will be rehabilitated at the end of construction works to reduce the footprint on the land.

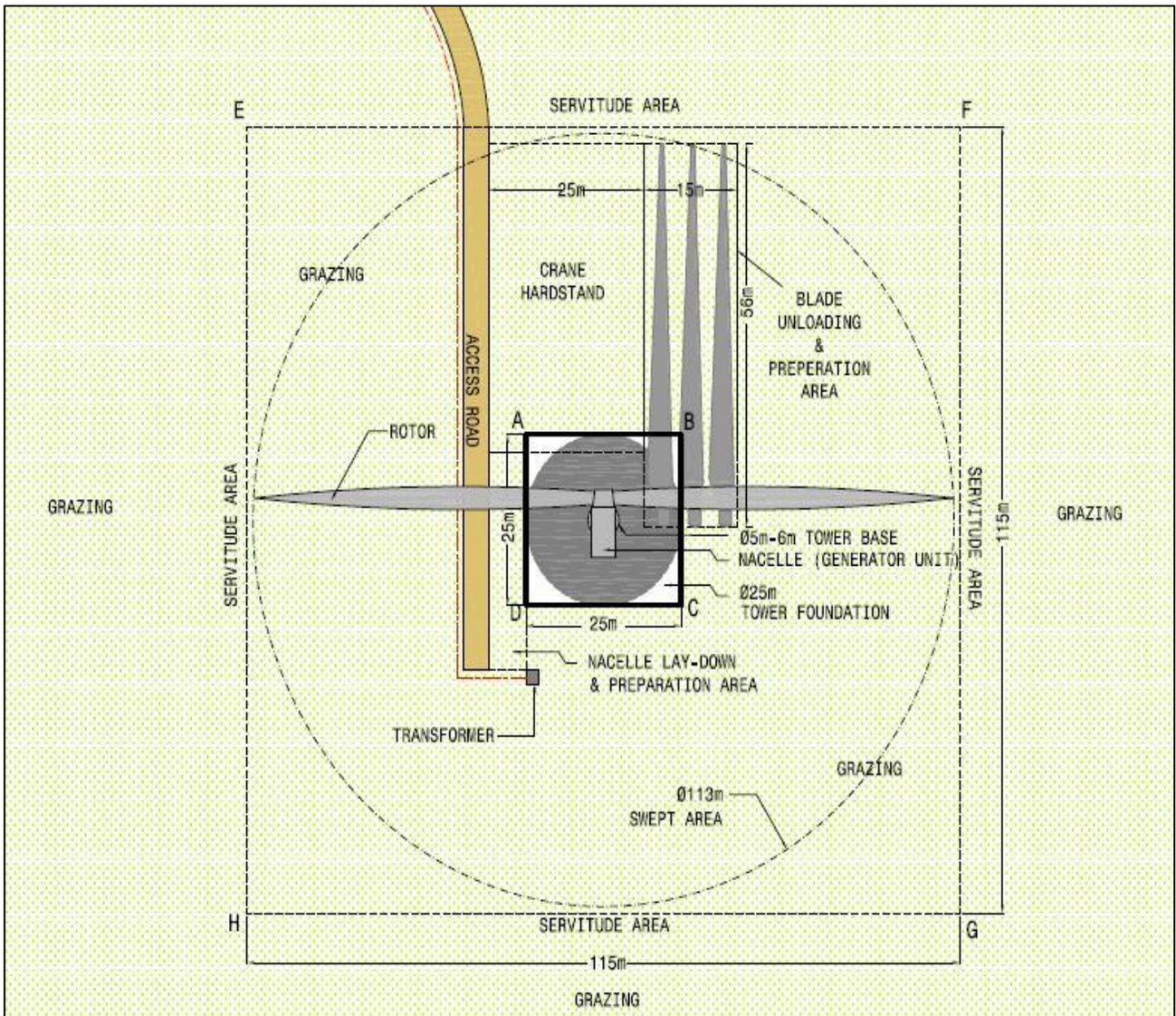


Figure 2-5: Typical construction phase platform

A platform of the dimensions indicated above needs to be laid down during the preliminary phase of a typical wind farm for access to the site during the construction phase by machines (bulldozers, trucks, cranes etc.).

Other works to be undertaken during the construction phase include:

(a) Geotechnical studies and foundation works

A geotechnical study of the area is undertaken for safety purposes. This comprises of drilling, penetration and pressure assessments. For the purpose of the foundations, approximately 1500 m³ of soil would need to be excavated for each turbine. These excavations are then filled with steel-reinforced concrete (typically 45 tons of steel reinforcement per turbine including a “bolt ring” to connect the turbine foundation to the turbine tower). Foundation design will vary according to the type and quality of the soil.

(b) Electrical cabling

Electrical and communication cables are laid approximately 1 m deep in trenches which run alongside the access roads as much as possible. All previous farming activities can continue unhindered on the ground above the cables during the operational phase.

(c) Establishment of hard standing surfaces and laydown areas

Laydown and storage areas will be required for the contractor's construction equipment and turbine components on site.

(d) Site preparation

If not carried out in the preliminary works phase, this will include clearance of vegetation over the access roads, platforms, lay-bys, substation and any other laydown or hard-standing areas. These activities will require the stripping of topsoil which will be stock-piled, back-filled and/or spread on site.

(e) Establishment of substation and ancillary infrastructure

The establishment of these facilities/buildings will require the clearing of vegetation and levelling of the development site and the excavation of foundations prior to construction. A laydown area for building materials and equipment associated with these buildings will also be required.

(f) Turbine erection

Weather permitting; the erection of the turbines can be completed swiftly and erection rates generally average 1-2 turbines per week. This phase is the most complex and costly.

(g) Undertake site remediation

Once construction is completed and all construction equipment is removed, the site must be rehabilitated. On full commissioning of the facility, any access points to the site which are not required during the operational phase must be closed and rehabilitated.

(h) Electrical Connection

Each turbine is fitted with its own transformer that steps up the voltage usually to 22 or 33 kV. The entire wind farm is then connected to the "point of interconnection" which is the electrical boundary between the wind farm and the municipal or national grid. Most of these works will be carried out by Eskom or an Eskom-approved sub-contractor (line upgrade, connection to the sub-station, burial of the cables etc.)

C) OPERATIONAL PHASE

During the period when the turbines are up and running, on-site human activity drops to a minimum, and includes routine maintenance requiring only light vehicles to access the site. Only major breakdowns would necessitate the use of cranes and trucks.

(a) Facility re-powering

The Wind turbines are expected to have a lifespan of approximately 20 years (with appropriate maintenance). The infrastructure would only be decommissioned once it has reached the end of its economic or technological life. If economically feasible, the disassembly and replacement of the individual components with more appropriate technology/infrastructure available at the time will take place.

D) DECOMMISSIONING OF THE WIND FARM

The infrastructure would only be decommissioned once it has reached the end of its economic or technological life. If economically feasible, the decommissioning activities would comprise the disassembly and replacement of the individual components with more appropriate technology/infrastructure available at the time. This operation is referred to as 'facility re-powering'. However, if not deemed so, then the facility would be completely decommissioned which would include the following decommissioning activities.

(a) Site preparation

Activities would include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

(b) Disassemble all individual components

The components would be disassembled and reused and recycled or disposed of in accordance with regulatory requirements.

FINAL

3 PROJECT NEED AND DESIRABILITY

Increasing pressure is being placed on countries internationally to reduce their reliance on fossil fuels, such as oil and coal, which contribute towards Greenhouse Gases (GHG) being emitted into the atmosphere and thus climate change. Renewable energy resources such as wind energy facilities and solar PV farms are being implemented as alternative sources of energy at a global and national scale.

South Africa has recognised the need to expand electricity generation capacity within the country. This is based on national policy and informed by ongoing planning undertaken by the Department of Energy (DoE) and the National Energy Regulator of South Africa (NERSA).

The draft of the South African Integrated Resource Plan (IRP 2018) was released for public comment in August 2018, setting out a new direction in energy sector planning. The plan includes a shift away from coal, increased adoption of renewables and gas, and an end to the expansion of nuclear power. The South African Government has not yet communicated a timeline for the plan's final adoption. The previous two (2) proposed IRP updates (in 2013 and 2016) were not adopted by Cabinet.

The revised plan, if adopted, would mark a major shift in energy policy. The policy aims to decommission a total of 35 GW (of 42 GW currently operating) of coal generation capacity from Eskom by 2050, starting with 12 GW by 2030, 16 GW by 2040 and a further 7 GW by 2050. The draft IRP 2018 also proposes a significant increase in renewables-based generation from wind and solar as well as gas-based generation capacity by 2030 and beyond, with no further new nuclear capacity being procured.

Implementing the IRP update of 2018 could bring South Africa close to meeting the upper range of its 2030 Nationally Determined Contribution (NDC) target. The implementation of the IRP update of 2018 would constitute significant progress in the transformation of the South African energy sector. To be in line with the Paris Agreement goals for mitigation, South Africa would still need to adopt more ambitious actions by 2050 such as expanding renewable energy capacity beyond 2030, fully phasing out coal by mid-century, and substantially limiting unabated natural gas use.

3.1 ELECTRICITY SUPPLY IN SOUTH AFRICA

South Africa's current electricity generation and supply system is unreliable. The Eastern Cape Province is reliant on the import of power from other provinces, and hence constrained by the availability and stability of electricity supply.

Currently, Eskom has a net output of 47,201MWp, and it produces 85% of South Africa's electricity, which is an equivalent of 40% of Africa's electricity. Renewable energy accounts for 5% of South Africa's electricity. This is mainly due to the targets set in the IRP2010-2030 that aimed to change the electricity landscape from high coal (91.7%) to medium coal (48%) using electricity produced by the Independent Power Producers, with the utility company, Eskom, as the single buyer of the electricity.

The REIPPP programme procured over 6.3GW by 2017 and of this, 3.8GW was already feeding into the grid. A further 2.4GW was procured in 2018, which included 27 projects signed by the minister. The REIPPP attracted \$14.4 billion investment by December 2017. The concept is based on the public-private partnership model to increase new generation capacity. It also encourages industrialisation as it requires that at least

40% of the technologies involved should have local content. This results in job creation for the local communities where manufacturing takes place.

3.2 SOCIAL AND ECONOMIC DEVELOPMENT

Albany Wind Power intends to promote local economic growth and development through direct and indirect employment, as well as the identification and implementation of social development schemes during the project's operational phase. A local community trust will be established in order to ensure that funds are channelled to these social development schemes.

The need and desirability of the proposed Albany WEF project can be demonstrated in the following main areas:

- Move to green energy due to growing concerns associated with climate change and the on-going exploitation of non-renewable resources;
- Security of electricity supply, where over the last few years, South Africa has been adversely impacted by interruptions in the supply of electricity; and
- Stimulation of the green economy where there is a high potential for new business opportunities and job creation.

The above main drivers, for renewable energy projects, are supported by the following International, National and Provincial (Eastern Cape Province) policy documents.

3.3 INTERNATIONAL

3.3.1 THE 1992 UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The UNFCCC is a framework convention which was adopted at the 1992 Rio Earth Summit. South Africa signed the UNFCCC in 1993 and ratified it in August 1997. The stated purpose of the UNFCCC is to, "achieve... stabilisation of greenhouse gas concentrations in the atmosphere at concentrations at a level that would prevent dangerous anthropogenic interference with the climate system", and to thereby prevent human-induced climate change by reducing the production of greenhouse gases defined as, "those gaseous constituents of the atmosphere both natural and anthropogenic, that absorb and re-emit infrared radiation".

RELEVANCE TO THE PROPOSED ALBANY WEF

The UNFCCC is relevant in that the proposed Albany WEF project will contribute to a reduction in the production of greenhouse gases by providing an alternative to fossil fuel-derived electricity. South Africa has committed to reducing emissions to demonstrate its commitment to meeting international obligations.

3.3.2 THE KYOTO PROTOCOL (2002)

The Kyoto Protocol is a protocol to the UNFCCC which was initially adopted for use on the 11th of December 1997 in Kyoto, Japan, and which entered into force on the 16th of February 2005 (UNFCCC, 2009). The Kyoto Protocol is the chief instrument for tackling climate change. The major feature of the Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions. This amounts to an average of 5% against 1990 levels over the five-year period 2008-2011.

The major distinction between the Protocol and the Convention is that, “while the Convention encouraged industrialised countries to stabilize GHG emissions, the Protocol commits them to do so”.

RELEVANCE TO THE PROPOSED ALBANY WEF

The Kyoto Protocol is relevant in that the proposed Albany WEF project will contribute to a reduction in the production of greenhouse gases by providing an alternative to fossil fuel-derived electricity and will assist South Africa to begin demonstrating its commitment to meeting international obligations in terms of reducing its emissions.

3.4 NATIONAL

3.4.1 NATIONAL DEVELOPMENT PLAN (2011)

The National Development Plan (NDP) (also referred to as Vision 2030) is a detailed plan produced by the National Planning Commission in 2011 that is aimed at reducing and eliminating poverty in South Africa by 2030. The NDP represents a new approach by Government to promote sustainable and inclusive development in South Africa, promoting a decent standard of living for all, and includes twelve (12) key focus areas, those relevant to the current proposed WEF being:

- An economy that will create more jobs.
- Improving infrastructure.
- Transition to a low carbon economy.

SECTOR	TARGET
Electrical infrastructure	<ul style="list-style-type: none"> ➤ South Africa needs an additional 29,000 MW of electricity by 2030. About 10,900 MW of existing capacity will be retired, implying new build of about 40,000 MW. ➤ About 20,000 MW of this capacity should come from renewable sources.
Transition to a low carbon economy	<ul style="list-style-type: none"> ➤ Achieve the peak, plateau and decline greenhouse gas emissions trajectory by 2025. ➤ About 20,000 MW of renewable energy capacity should be constructed by 2030.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF will contribute towards additional energy capacity in South Africa and will contribute towards a reduction in greenhouse gas emissions.

3.4.2 NATIONAL CLIMATE CHANGE RESPONSE WHITE PAPER (2012)

The White Paper indicates that Government regards climate change as one of the greatest threats to sustainable development in South Africa and commits the country to making a fair contribution to the global effort to achieve the stabilisation of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system.

The White Paper also identifies various strategies in order to achieve its climate change response objectives, including:

- The prioritisation of mitigation interventions that significantly contribute to an eventual decline emission trajectory from 2036 onwards, in particular, interventions within the energy, transport and industrial sectors.
- The prioritisation of mitigation interventions that have potential positive job creation, poverty alleviation and/or general economic impacts. In particular, interventions that stimulate new industrial activities and those that improve the efficiency and competitive advantage of existing business and industry.

The White Paper provides numerous specific actions for various Key Mitigation Sectors including renewable energy. The following selected strategies (amongst others) must be implemented by South Africa in order to achieve its climate change response objectives:

- The prioritisation of mitigation interventions that significantly contribute to a peak, plateau and decline emission trajectory where greenhouse gas emissions peak in 2020 to 2025 at 34% and 42% respectively below a business as usual baseline, plateau to 2035 and begin declining in absolute terms from 2036 onwards, in particular, interventions within the energy, transport and industrial sectors.
- The prioritisation of mitigation interventions that have potential positive job creation, poverty alleviation and/or general economic impacts. In particular, interventions that stimulate new industrial activities and those that improve the efficiency and competitive advantage of existing business and industry.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF project will provide an alternative to fossil fuel-derived electricity and will contribute to climate change mitigation.

3.4.3 WHITE PAPER ON RENEWABLE ENERGY POLICY (2003)

The White Paper on the Renewable Energy Policy (2003) commits the South African Government support for the development, demonstration and implementation of renewable energy sources for both small and large scale applications. It sets out the policy principles, goals and objectives to achieve, “An energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation”.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF is consistent with the White Paper and the objectives therein to develop an economy in which renewable energy has a significant market share and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation.

3.4.4 INTEGRATED ENERGY PLAN FOR THE REPUBLIC OF SOUTH AFRICA (2003)

The former Department of Minerals and Energy (DME) commissioned the Integrated Energy Plan (IEP) in response to the requirements of the National Energy Policy in order to provide a framework by which specific energy policies, development decisions and energy supply trade-offs could be made on a project-by-project basis. The framework is intended to create a balance between energy demand and resource availability so as to provide low cost electricity for social and economic development, while taking into account health, safety and environmental parameters.

In addition to the above, the IEP recognised the following:-

- South Africa is likely to be reliant on coal for at least the next 20 years as the predominant source of energy.
- New electricity generation will remain predominantly coal based but with the potential for hydro, natural gas, renewables and nuclear capacity.
- Need to diversify energy supply through increased use of natural gas and new and renewable energies.
- The promotion of the use of energy efficiency management and technologies.
- The need to ensure environmental considerations in energy supply, transformation and end use.
- The promotion of universal access to clean and affordable energy, with the emphasis on household energy supply being coordinated with provincial and local integrated development programme.
- The need to introduce policy, legislation and regulations for the promotion of renewable energy and energy efficiency measures and mandatory provision of energy data.
- The need to undertake integrated energy planning on an on-going basis.

RELEVANCE TO THE PROPOSED ALBANY WEF

The Albany WEF is in line with the IEP with regards to diversification of energy supply and the promotion of universal access to clean energy.

3.4.5 INTEGRATED RESOURCE PLAN FOR ELECTRICITY 2010-2030 (REVISION 2, 2011)

The Integrated Resource Plan (IRP, 2010) for South Africa was initiated by the DoE and lays the foundation for the country's energy mix up to 2030, and seeks to find an appropriate balance between the expectations of different stakeholders considering a number of key constraints and risks, including:

- Reducing carbon emissions.
- New technology uncertainties such as costs, operability and lead time to build.
- Water usage.
- Localisation and job creation.
- Southern African regional development and integration.
- Security of supply.

The Policy-Adjusted IRP includes recent developments with respect to prices and allocates 17 800 MW for renewables, of the total 42 600 GW (including both renewables and non-renewables) new-build up to 2030 allocated as follows:

- Wind at 8 400 MW.
- Concentrated solar power at 1 000 MW.
- Photovoltaic at 8 400 MW.

RELEVANCE TO THE PROPOSED ALBANY WEF

The Albany WEF is in line with the IRP for electricity and will contribute towards finding an appropriate balance between the various stakeholders as per the IRP2010.

3.4.6 DRAFT INTEGRATED RESOURCE PLAN (2018)

The 2011 version of the IRP is currently under review with a draft version having been put out for comment in August 2018.

The draft IRP 2018 is essentially a plan for South Africa's future energy needs but also attempts to balance a number of objectives, including: security of supply, at minimal cost, with minimal environmental impacts (including CO₂ emission reduction targets) and minimal water usage.

Drawing from the conclusions of the scenarios analysed, the scenario of RE without annual build limits provides the least-cost path up to 2050. The significant change in the energy mix post 2030 and the sensitivity of the energy mix to the assumptions are key points to note.

It is therefore recommended that the post 2030 path not be confirmed, but that detailed studies be undertaken to inform the future update of the IRP. These studies should, among others, include the following:

- Detailed analysis of the appropriate level of penetration of RE in the South African national grid to better understand the technical risks and mitigations required to ensure security of supply is maintained during the transition to a low-carbon future.

For the period ending 2030, a number of policy adjustments are proposed to ensure a practical plan that will be flexible to accommodate new, innovative technologies that are not currently cost competitive, the minimization of the impact of decommissioning of coal power plants and the changing demand profile.

Applied policy adjustment and considerations in the final proposed plan includes the following:

- A least-cost plan with the retention of annual build limits (1 000 MW for PV and 1 600 MW for wind) for the period up to 2030. This provides for smooth roll out of RE, which will help sustain the industry.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF is in line with the draft IRP 2018 with respect to the energy mix and movement to a low carbon economy up to 2030 and beyond.

3.4.7 RENEWABLE ENERGY INDEPENDENT POWER PRODUCER PROCUREMENT PROGRAMME (REIPPPP)

South Africa has a high level of renewable energy potential and presently has in place a target of 17 800 MW of renewable energy. The REIPPPP Programme has been designed so as to contribute towards the national target and towards socio-economic and environmentally sustainable growth, and to start and stimulate the renewable industry in South Africa.

In terms of the REIPPPP, bidders will be required to bid on tariff and the identified socio-economic development objectives of the DoE. The tariff will be payable by the Buyer (currently Eskom) pursuant to the Power Purchase Agreement (PPA) to be entered into between the Buyer and the Project Company of a Preferred Bidder.

The following table summarises the REIPPPP bidding windows which have already been completed.

Bidding Window 1	Bidding Window 2	Bidding Window 3	Bidding Window 3.5	Bidding Window 4
➤ Submission Date: 04/11/2011	➤ Submission Date: 05/03/2012	➤ Submission Date: 19/08/2013	➤ Submission Date: 31/04/2014	➤ Submission Date: 18/08/2014
➤ 28 Preferred Bidders	➤ 19 Preferred Bidders	➤ 17 Preferred Bidders	➤ 2 Preferred Bidders	➤ 26 Preferred Bidders
➤ 1 425 MW of contracted capacity	➤ 1 040 MW of contracted capacity	➤ 1 457 MW of contracted capacity	➤ 200 MW of contracted capacity	➤ 2 205 MW of contracted capacity

Media reports have suggested that Bidding Window 5 (BW5) of the REIPPPP will be launched in 2019 and it is estimated that it will secure 1 800 MW of renewable energy.

RELEVANCE TO THE PROPOSED ALBANY WEF

In terms of REIPPPP, bids would be awarded for renewable energy supply to Eskom through up to 5 bidding phases. The 1st, 2nd, 3rd and 4th round bidding processes have been completed where projects are currently reaching financial close in order to implement the projects. REIPPPP is entering the 5th bidding window.

3.4.8 LONG TERM MITIGATION SCENARIOS (2007)

The aim of the Long-Term Mitigation Scenarios (LTMS) was to set the pathway for South Africa’s long-term climate policy and will eventually inform a legislative, regulatory and fiscal package that will give effect to the policy package at a mandatory level. The overall goal is to “develop a plan of action which is economically risk-averse and internationally aligned to the world effort on climate change.”

The strategy assesses various response scenarios but concludes that the only sustainable option (“the preferred option”) for South Africa is the “Required by Science” scenario where the emissions reduction targets should target a band of between -30% to -40% emission reductions from 2003 levels by 2050 which includes increasing renewable energy in the energy mix by 50% by 2050.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF will contribute towards an overall reduction in emissions and aligns with the world stance on efforts towards the mitigation of climate change.

3.4.9 INDUSTRIAL POLICY ACTION PLAN 2011/12 – 2013/14

The South African Industrial Policy Action Plan (IPAP 2) 2011/12 – 2013/14 represents a further step in the evolution of this work and serves as an integral component of government’s New Growth Path and notes that there are significant opportunities to develop new ‘green’ and energy-efficient industries and related services; and indicates that in 2007/2008, the global market value of the ‘Low-Carbon Green Sector’ was estimated at £3 trillion (or nearly US\$5 trillion), a figure that is expected to rise significantly in the light of climate-change imperatives, energy and water security imperatives.

Based on economic, social and ecological criteria, IPAP identified a number of sub-sectors and an initial round of concrete measures were proposed for development of the renewable energy sector with the following key action programmes:

- Solar and Wind Energy - Stimulate demand to create significant investment in renewable energy supply and the manufacturing of local content for this supply.
- Green Industries special focus: The South African Renewables Initiative (SARi) - SARi is an intra-governmental initiative set to catalyse industrial and economic benefits from an ambitious program of renewables development; including financing and associated institutional arrangements that would not impose an unacceptable burden on South Africa’s economy, public finances or citizens.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF will contribute towards an overall reduction in emissions and it aligns with the world stance on efforts towards the mitigation of climate change.

3.4.10 STRATEGIC INFRASTRUCTURE PROJECTS (2012)

The National Infrastructure Plan that was adopted in 2012 together with the New Growth Path, which sets a goal of five million new jobs by 2020, identifies structural problems in the economy and points to opportunities in specific sectors and markets or “jobs drivers” resulted in the establishment of the Presidential Infrastructure Coordinating Committee (PICC) which in turn resulted in the development of 18 Strategic Infrastructure Projects (SIPS).

SIPS relevant to renewable energy include:

SIP 8: Green energy in support of the South African economy

- Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP2010).

SIP 9: Electricity generation to support socio-economic development

- Accelerate the construction of new electricity generation capacity in accordance with the IRP2010 to meet the needs of the economy and address historical imbalances.

RELEVANCE TO THE PROPOSED ALBANY WEF

The Albany WEF will contribute to SIP project role out.

3.5 PROVINCIAL

3.5.1 EASTERN CAPE PROVINCIAL DEVELOPMENT PLAN (2014)

Strategic action 1.1.6: Position the province as a key investment hub in the energy sector and ensure reliable energy supply to high-potential sectors.

The Eastern Cape Province is positioning itself as an investment hub for the energy sector, which includes wind energy, imported liquefied natural gas, shale-gas and nuclear energy. This provides the Province with opportunities to develop the capital goods sector and heavy industries. Investment in the energy sector could become a major catalyst for provincial economic development, especially if the costs and benefits are adequately managed. These benefits could potentially include, but are not limited to:

- Cheaper energy which is likely reduce the prices of transport and food;
- Creation of employment opportunities during the construction, operation and maintenance of new energy facilities; and
- Creation of employment opportunities relating to the supply of manufactured components for new energy facilities.

In 2014, approved wind energy projects already accounted for 63% of the average provincial energy demand of approximately 1 700 MW. Although there are significant institutional interferences to wind farm developments, particularly due to land tenure issues in the former homelands. Pre-authorisation arrangements in the identified “renewable energy zones”, which will/are located in both the Cacadu and Chris Hani districts will allow this industry to expand to its full potential of approximately 500 MW.

In addition, the Eastern Cape Vision 2030 Provincial Development Plan states that municipalities need to improve their maintenance and upgrading of electricity distribution, and review their mark-ups on electricity prices. It is also stated that this work should be led by the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT).

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF is in line with the Eastern Cape Vision 2030 Provincial Development Plan, specifically Strategic Action 1.1.6, as it entails the development of a wind farm which could potentially contribute up to 297 MW of electricity to the Eskom Grid.

3.5.2 EASTERN CAPE CLIMATE CHANGE STRATEGY (2011)

According to the Eastern Cape Climate Change Response Strategy, wind energy was the fastest growing energy technology sector, which accounted for more than 50% of worldwide clean energy investment, in 2009 as well as almost half of the installed clean energy capacity worldwide. The South African Wind Energy Association called for 25% of the overall electricity generation mix by 2025 to be derived from renewable energy, with 80% of this target potentially coming from wind power.

The Eastern Cape Climate Change Response Strategy, developed a set of pragmatic Greenhouse Gas (GHG) mitigation programmes. These consisted of the following mitigation categories:

- Mainstreaming GHG mitigation in provincial and local government and in industry
 - Mainstreaming GHG mitigation in decision-making at all levels of government within the Eastern Cape Province;
 - Promoting GHG mitigation in provincial and local government operations; and

- Promoting GHG reporting in industry.
- Promotion of renewable energy in the Eastern Cape
 - Create an enabling environment for investment in, implementation and use of clean energy in the Eastern Cape.
- Mitigation and opportunities for rural livelihoods
 - Facilitate integrated lead projects that promote sustainable livelihoods and local economic development while achieving (tradable) emission reductions.
- Mitigation in solid waste and wastewater treatment
 - Reduction in organic waste to landfill, renewable energy from waste, and methane use or destruction.
- Greenhouse gas mitigation in transport
 - Facilitate shift to low GHG modes of transport and transport systems.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF supports the Eastern Cape Climate Change Response Strategy as it is in line with the mitigation measures that have been developed in an effort to reduce GHG emissions.

3.5.3 EASTERN CAPE SUSTAINABLE ENERGY STRATEGY (2012)

The Eastern Cape Sustainable Energy Strategy identifies six (6) goals which will assist in achieving the Province’s vision, “The Eastern Cape provides the most enabling environment for sustainable energy investment and implementation in the country”, and these goals include:

- Goal 1: Job creation and skills development
- Goal 2: Alleviate energy poverty
- Goal 3: Alleviate CO2 emissions and environmental pollution
- Goal 4: Improve industrial competitiveness
- Goal 5: Promote renewable energy production in the Province
- Goal 6: Promote the development of a renewable energy manufacturing industry and technology development

In addition, Section 6.2.2: Future Supply Options for the Eastern Cape of the Eastern Cape Sustainable Energy Strategy states that “60 wind farms with a combined capacity of about 4 253 MW have applied to Eskom for connection quotations in the Province (as at March 2012); this is the most promising short- and medium-term source of locally generated energy for the Eastern Cape.”

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed Albany WEF could potentially contribute, directly and/or indirectly, to all six (6) sustainable energy goals as stipulated in the Eastern Cape Sustainable Energy Strategy.

3.6 CONCLUDING REMARKS

When considering the overall need for the development of the Albany WEF, it is clear that the need and desirability is not only supported from a planning and policy perspective on a national level but also at the provincial, district, and most importantly, the local level.

The Albany WEF project developer has also indicated that local socio-economic benefits will be realised with the development of the WEF, specifically in line with the socio-economic development goals under the REIPPPP, which will include:

- The realisation of the local needs and requirements within the area;

- Job creation within an area;
- The creation of a second income for the affected landowners;
- An increase in the standard of living; and
- An overall economic and social upliftment within the area.

The construction and operation of the Albany WEF will contribute to local developmental objectives of poverty eradication and other social and socio-economic benefits that are integral to the REIPPPP process. The development of wind farms attracts significant direct foreign financial investment into South Africa and local communities. REIPPPP local content requirements can lead to the creation of local industry and both skilled and un-skilled jobs in the RE industrial sector.

Further positive social and socio-economic benefits will be realised by the landowners which will host turbines, in the form of rental income which in turn will have multiplier effects on the local economy due to local spend. In addition, farming activities can continue alongside the wind turbines, while rental income may also be used to enhance farming activities.

It is worth noting that the ruling ANC government 2019 election manifesto specifically states that it is committed to the following concerning renewable energy:

- Continue to support the use of renewable technologies in the country's energy mix to reduce the cost of energy, decrease greenhouse emissions, build the local industry through increased localisation and create jobs, while recognising the reality that we have large coal reserves that can provide cheap energy that can also assist with affordable prices.
- Take forward NEDLAC's Green Economy Accord on renewable energy. We will ensure that workers are treated fairly and reskilled and that the needs of people and the environment are at the centre of a just transition to a sustainable and low carbon energy future.
- Develop and implement a dedicated education and training programme on renewable energy targeting young people.
- Contribute to investment to boost greater demand in the renewable sector – particularly solar, municipal waste, biomass, biogas and wind – to support rural development, localisation, research and development, small enterprises and co-operatives.

Therefore, considering the above need for the project from a national, provincial and local level, it can be concluded that the Albany WEF will contribute to the reduction of the human contribution to climate change, while also assisting with the alleviation of poverty through improving the economic and social structures on national, provincial and local levels.

4 RELEVANT LEGISLATION

The development of the proposed Albany WEF will be subject to the requirements of various items of South African legislation. These are described below.

4.1 THE CONSTITUTION ACT (ACT NO. 108 OF 1996)

This is the supreme law of the land. As a result, all laws, including those pertaining to the proposed development, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right:

- (a) To an environment that is not harmful to their health or well-being.
- (b) To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:
 - (i) Prevent pollution and ecological degradation.
 - (ii) Promote conservation.
 - (iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

RELEVANCE TO THE PROPOSED ALBANY WEF

- *The WEF developer has an obligation to ensure that the proposed activity will not result in pollution and ecological degradation.*
- *The WEF developer has an obligation to ensure that the proposed activity is ecologically sustainable, while demonstrating economic and social development.*

4.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT NO. 107 OF 1998 AND SUBSEQUENT AMENDMENTS)

The National Environmental Management Act (NEMA, Act No. 107 of 1998) provides for basis for environmental governance in South Africa by establishing principles and institutions for decision-making on matters affecting the environment.

A key aspect of the NEMA is that it provides a set of environmental management principles that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. Section 2 of NEMA contains principles (see Table 4-1) relevant to the proposed WEF project, and likely to be utilised in the process of decision making by DEA.

Table 4-1. NEMA Environmental Management Principles

(2)	Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
(3)	Development must be socially, environmentally and economically sustainable.
(4)(a)	Sustainable development requires the consideration of all relevant factors including the following: <ul style="list-style-type: none">i. That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

	iii. That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
(4)(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
(4)(i)	The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
(4)(j)	The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
(4)(p)	The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
(4)(r)	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

As these principles are utilised as a guideline by the competent authority in ensuring the protection of the environment, the proposed development should, where possible, be in accordance with these principles. Where this is not possible, deviation from these principles would have to be very strongly motivated.

NEMA introduces the duty of care concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution and may lead to the prosecution of managers or directors of companies for the conduct of the legal persons.

Employees who refuse to perform environmentally hazardous work, or whistle blowers, are protected in terms of NEMA.

RELEVANCE TO THE PROPOSED ALBANY WEF

- *The WEF developer must be mindful of the principles, broad liability and implications associated with NEMA and must eliminate or mitigate any potential impacts.*
- *The WEF developer must be mindful of the principles, broad liability and implications of causing damage to the environment.*

4.3 NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT (ACT NO. 57 OF 2003)

The National Environmental Management: Protected Areas Act (NEMPAA, Act No. 57 of 2003) mainly provides for the following:

- Declaration of nature reserves and determination of the type of reserve declared.
- Cooperative governance in the declaration and management of nature reserves.
- A system of protected areas in order to manage and conserve biodiversity.
- Utilization and participation of local communities in the management of protected areas.

RELEVANCE TO THE PROPOSED ALBANY WEF

The Act is relevant as the proposed Albany WEF is proposed within 5km of a Provincial Protected Area (Thomas Baines Nature Reserve: Beggars Bush).

4.4 NATIONAL ENVIRONMENT MANAGEMENT: BIODIVERSITY ACT (No. 10 OF 2004)

The National Environment Management: Biodiversity Act (NEM:BA, Act No. 10 of 2004) provides for the management and conservation of South Africa's biodiversity and the protection of species and ecosystems that warrant national protection.

The objectives of this Act are to:

- Provide, within the framework of the National Environmental Management Act.
- Manage and conserve of biological diversity within the Republic.
- Promote the use of indigenous biological resources in a sustainable manner.

The Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998. In terms of the Biodiversity Act, the developer has a responsibility for:

- 1 The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (including The Endangered and Threatened Ecosystem Regulations, Government Notice R. 1002 dated 9th December 2011).
- 2 Application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity.
- 3 Limit further loss of biodiversity and conserve endangered ecosystems.

The Act's permit system is further regulated in the Act's Threatened or Protected Species Regulations Government Notice R. 152, dated the 23rd of February 2007.

RELEVANCE TO THE PROPOSED ALBANY WEF

- *The WEF developer must not cause a threat to any endangered ecosystems and must protect and promote biodiversity;*
- *The WEF developer must assess the impacts of the proposed development on endangered ecosystems;*
- *The WEF developer may not remove or damage any protected species without a permit; and*
- *The WEF developer must ensure that the site is cleared of alien vegetation using appropriate means (AIS Regulations, Government Notice R. 598 of the 1st of April 2014 are applicable)*

4.5 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT (No. 39 OF 2004)

The National Environmental Management: Air Quality Act (NEM:AQA, Act No. 39 of 2004) is the principal legislation regulating air quality in South Africa. The objects of the Act are to:

- Give effect to Section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people, and
- Protect the environment by providing reasonable measures for:
 - Protection and enhancement of the quality of air in the Republic.
 - Prevention of air pollution and ecological degradation.
- Securing ecologically sustainable development while promoting justifiable economic and social development.

The Air Quality Act empowers the Minister to establish a national framework for achieving the objects of this Act. The said national framework will bind all organs of state. The said national framework will inter alia have to establish national standards for municipalities to monitor ambient air quality and point, non-point and mobile emissions.

RELEVANCE TO THE PROPOSED ALBANY WEF

Although no major air quality issues are expected, the WEF developer needs to be mindful of the Act as it also relates to potential dust generation during construction, etc.

4.6 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE MANAGEMENT ACT (NO. 59 OF 2008)

The National Environmental Management: Waste Management Act (NEM:WA, Act No. 59 of 2008) gives legal effect to the Government's policies and principles relating to waste management in South Africa, as reflected in the National Waste Management Strategy (NWMS).

The objects of the Act are (amongst others) to protect health, well-being and the environment by providing reasonable measures for:

- Minimising the consumption of natural resources;
- Avoiding and minimising the generation of waste;
- Reducing, re-using, recycling and recovering waste;
- Treating and safely disposing of waste as a last resort;
- Preventing pollution and ecological degradation; and
- Securing ecologically sustainable development while promoting justifiable economic and social development.

RELEVANCE TO THE PROPOSED ALBANY WEF

- *The WEF developer must ensure that all activities associated with the project address waste related matters in compliance with the requirements of the Act.*
- *The WEF developer must consult with the local municipalities to ensure that waste is disposed of at a registered landfill site.*

4.7 NATIONAL FORESTS ACT (NO. 84 OF 1998)

The objective of this Act is to monitor and manage the sustainable use of forests. In terms of Section 12 (1) (d) of this Act and GN No. 1012 (promulgated under the National Forests Act), no person may, except under licence:

- Cut, disturb, damage or destroy a protected tree.
- Possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree.

RELEVANCE TO THE PROPOSED ALBANY WEF

If any protected trees or indigenous forest in terms of this Act occur on site, the WEF developer will require a licence from the Department of Forestry (DAFF) to perform any of the above-listed activities.

4.8 NATIONAL HERITAGE RESOURCES ACT (No. 25 of 1999)

The protection of archaeological and paleontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, paleontological material and meteorites are the property of the State. “Any person who discovers archaeological or paleontological objects or material or a meteorite in the course of development must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority”.

RELEVANCE TO THE PROPOSED ALBANY WEF

- SAHRA must be informed of the project and EIA process.
- A Heritage Impact Assessment (HIA) must be undertaken by a suitably qualified specialist.
- No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or paleontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority.
- No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter or deface archaeological or historically significant sites.

4.9 ELECTRICITY REGULATION ACT (No. 4 of 2006)

The Electricity Regulation Act (Act No. 4 of 2006) came into effect on the 1st of August 2006 and the objectives of this Act are to:

- Facilitate universal access to electricity.
- Promote the use of diverse energy sources and energy efficiencies.
- Promote competitiveness and customer and end user choice.

RELEVANCE TO THE PROPOSED ALBANY WEF

The proposed WEF is in line with the call of the Electricity Regulation Act as it has the potential to improve energy security of supply through diversification.

4.10 OCCUPATIONAL HEALTH AND SAFETY ACT (No. 85 of 1993)

The objective of this Act is to provide for the health and safety of persons at work. In addition, the Act requires that, “as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards”. The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed Albany WEF. These cover, among other issues, noise and lighting.

RELEVANCE TO THE PROPOSED ALBANY WEF

The WEF developer must be mindful of the principles and broad liability and implications contained in the OHSA and mitigate any potential impacts.

4.11 AVIATION ACT (No. 74 of 1962): 13TH AMENDMENT OF THE CIVIL AVIATION REGULATIONS 1997

Section 14 of obstacle limitations and marking outside aerodrome or heliport (CAR Part 139.01.33) under this Act specifically deals with wind turbine generators (wind farms). According to this section, “A wind turbine

generator is a special type of aviation obstruction due to the fact that at least the top third of the generator is continuously variable and offers a peculiar problem in as much marking by night is concerned. The Act emphasizes that, when wind turbine generators are grouped in numbers of three or more they will be referred to as “wind farms”.

Of importance to the proposed Albany WEF project are the following:

- Wind farm placement: Due to the potential of wind turbine generators to interfere on radio navigation equipment, no wind farm should be built closer than 35 km from an aerodrome. In addition, much care should be taken to consider visual flight rules routes, proximity of known recreational flight activity such as hang gliders, en-route navigational facilities etc.
- Wind farm markings: Wind turbines shall be painted bright white to provide the maximum daytime conspicuousness. The colours grey, blue and darker shades of white should be avoided altogether. If such colours have been used, the wind turbines shall be supplemented with daytime lighting, as required.
- Wind farm lighting: Wind farm (3 or more units) lighting: In determining the required lighting of a wind farm, it is important to identify the layout of the wind farm first. This will allow the proper approach to be taken when identifying which turbines need to be lit. Any special consideration to the site’s location in proximity to aerodromes or known corridors, as well as any special terrain considerations, must be identified and addressed at this time.
- Turbine Lighting Assignment: The following guidelines should be followed to determine which turbines, need to be equipped with lighting fixtures. Again, the placement of the lights is contingent upon which type of configuration is being used.

RELEVANCE TO THE PROPOSED ALBANY WEF

Due to requirements of the Act to ensure the safety of aircrafts, the WEF developer must engage directly with the Civil Aviation Authority regarding the structural details of the facility.

4.12 NATIONAL WATER ACT (NO. 36 OF 1998)

The National Water Act (NWA, Act No. 36 of 1998) provides for fundamental reform of the law relating to water resources in South Africa.

The purpose of the Act amongst other things is to:

- Ensure that the national water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors:
 - Promoting equitable access to water.
 - Promoting the efficient, sustainable and beneficial use of water in the public interest.
 - Facilitating social and economic development.
 - Protecting aquatic and associated ecosystems and their biological diversity.
 - Reducing and preventing pollution and degradation of water resources.

The NWA is concerned with the overall management, equitable allocation and conservation of water resources in South Africa. To this end, it requires registration of water users and licenses to be obtained for water use except for certain limited instances set out in the Act. These instances include domestic use, certain recreational use, where the use occurs in terms of an existing lawful use or where the Department of Water Affairs (DWA) has issued a general authorisation that obviates the need for a permit.

Water use for which a permit is required

For the purposes of this Act, water uses for which a permit is required (amongst other), are defined in Section 21 as follows:

- Taking water from a water resource.

- Storing water.
- Impeding or diverting the flow of water in a watercourse.
- Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit.
- Disposing of waste in a manner which may detrimentally impact on a water resource.
- Altering the bed, banks, course or characteristics of a watercourse.

*** PLEASE NOTE THAT GENERAL AUTHORISATIONS (GAS) AND WULAS ARE ONLY AUTHORISED TO BE SUBMITTED TO DWS ONCE A WIND ENERGY FACILITY HAS BEEN GRANTED PREFERRED BIDDER STATUS. SHOULD ALBANY WEF BE GRANTED PREFERRED BIDDER STATUS THEN WULAs WILL BE SUBMITTED FOR CONSIDERATION BY THE DWS.**

RELEVANCE TO THE PROPOSED ALBANY WEF

There may be certain instances where the WEF developer may need to obtain approval in terms of the Water Act.

4.13 CONSERVATION OF AGRICULTURAL RESOURCES ACT (NO. 43 OF 1983)

The Conservation of Agricultural Resources Act (CARA, Act No. 43 of 1983) is the main statute that deals with agricultural resource conservation.

The objects of the Act are to provide for the conservation of the natural agricultural resources of South Africa by the maintenance of the production potential of land. In order to maintain production potential of land, CARA provides for the following mechanisms; namely:

- Combating and prevention of erosion and weakening and destruction of water sources.
- Protection of vegetation.
- Combating of weeds and invader plants.

In order to give meaning to mechanisms aimed maintaining production potential of land provided for in CARA, Minister of Agriculture published regulations under CARA (CARA Regulations) which prescribes control measures which all land users have to comply, in respect of a number of matters, including the:

- Cultivation of virgin soil.
- Protection of cultivated land.
- Utilisation and protection of the veld.
- Control of weed and invader plants.
- Prevention and control of veld fires and the restoration and reclamation of eroded land.

RELEVANCE TO THE PROPOSED ALBANY WEF

An agricultural potential assessment must be conducted to determine how the proposed development is likely to impact on the agricultural production potential of the WEF site.

4.14 SUBDIVISION OF AGRICULTURAL LAND ACT (NO. 70 OF 1970)

The Subdivision of Agricultural Land Act (Act No. 70 of 1970) controls the subdivision of all agricultural land in South Africa and prohibits certain actions relating to agricultural land. In terms of the Act, the owner of agricultural land is required to obtain consent from the Minister of Agriculture in order to subdivide agricultural land.

The purpose of the Act is to prevent uneconomic farming units from being created and degradation of prime agricultural land. The Act also regulates leasing and selling of agricultural land as well as registration of servitudes.

RELEVANCE TO THE PROPOSED ALBANY WEF

Approval will be required from the DAFF for any activities on the land zoned for agriculture and any proposed rezoning or sub-divisions of agricultural land.

4.15 MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (No. 28 OF 2002)

Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002) makes provision for equitable access to and sustainable development of the South Africa's mineral and petroleum resources and to provide for matters connected therewith.

The objects of this Act are (amongst others) to:

- Give effect to the principle of the State's custodianship of the nation's mineral and petroleum resources.
- Promote equitable access to the nation's mineral and petroleum resources to all the people of South Africa.
- Give effect to Section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

Application for a mining right

As per Section 27 (1) of the Act, the Department of Minerals Resources (DMR) must grant permission for all mining operations. Both the removal of sand and/or stone from a borrow pit or quarry requires an application for a mining permit or a mining right.

There are two (2) categories of permission relevant to borrow pits and hard rock quarries, namely; "Mining Permits" and secondly "Mining Rights." As is reflected in the table below, these categories are linked to the size of the proposed operation and the proposed operational period.

CATEGORY	SIZE	PERIOD OF OPERATION	DMR REQUIREMENT
Mining Permit	< 1.5 ha	< 2 years	EIA: Basic Assessment Environmental Management Programme (EMPr)
Mining Right (Licence)	> 1.5 ha	< 30 years	EIA: Scoping and EIA Environmental Management Programme (EMPr)

In addition, Section 53 of the Act requires that Ministerial approval is attained for "any person who intends to use the surface of any land in any way which may be contrary to any object of this Act or is likely to impede any such object".

RELEVANCE TO THE PROPOSED ALBANY WEF

- *Any activities associated with the WEF requiring extraction of sand or hard rock for construction purposes will require the submission of an application to DMR for either a mining permit or mining licence.*
- *The Albany WEF must apply to the Minister of Mineral Resources for approval to use the land for the purposes of the WEF.*
- *The DMR has aligned its authorisation process with that of the DEA, and from August 2015, all applications for mining activities require an Environmental Impact Assessment, as per the EIA Regulations.*

4.16 NATIONAL ROAD TRAFFIC ACT (No. 93 OF 1996)

The National Road Traffic Act (NRTA, Act No. 93 of 1996) provides for all road traffic matters and is applied uniformly throughout South Africa. The Act enforces the necessity of registering and licensing motor vehicles. It also stipulates requirements regarding fitness of drivers and vehicles as well as making provision for the transportation of dangerous goods.

RELEVANCE TO THE PROPOSED ALBANY WEF

All the requirements stipulated in the NRTA will need to be complied with during the construction and operational phases of the proposed wind farm.

4.17 NATIONAL VELD AND FOREST FIRE ACT (No. 101 OF 1998)

The aim of the Act is to “prevent and combat veld, forest and mountain fires” in South Africa. Of particular relevance to the proposed Albany WEF development the following requirements of the Act need to be considered:

RELEVANT SECTION OF THE ACT	RELEVANT TO THE PROPOSED ALBANY WEF:
Section 3: Fire Protection Associations.	The proposed Albany WEF must register as a member of the fire protection association in the area.
Chapter 4 Section 12-14: Veld fire prevention: duty to prepare and maintain firebreaks	The proposed Albany WEF will be required to take all practicable measures to ensure that fire breaks are prepared and maintained according to the specifications contained in Section 12 – 14.
Section 17: Firefighting: readiness	The proposed Albany WEF must have the appropriate equipment, protective clothing and trained personnel for extinguishing fires.

4.18 OTHER RELEVANT NATIONAL LEGISLATION

Other legislation that may be relevant to the proposed Albany WEF includes:

- The Environment Conservation Act No 73 of 1989 (ECA) Noise Control Regulations, which specifically provide for regulations to be made with regard to the control of noise, vibration and shock, including prevention, acceptable levels, powers of local authorities and related matters.
- The Telecommunication Act (1966) which has certain requirements with regard to potential impacts on signal reception.
- Provincial Nature and Environmental Conservation Ordinance (No. 19 of 1974), which lists species of special concern which require permits for removal. Schedules 1 to 4 list protected and endangered plant and animal species.
- Spatial Planning and Land Use Management Act (SPLUMA) (Act 16 of 2013 – came into force on 1 July 2015) aims to provide inclusive, developmental, equitable and efficient spatial planning at the different spheres of the government. This act repeals national laws on the Removal of Restrictions Act, Physical Planning Act, Less Formal Township Planning Act and Development Facilitation Act.

In addition to the above, aside from the environmental authorisation, there are other permits, contracts and licenses that will need to be obtained by the project proponent for the proposed project some of which fall outside the scope of the EIA. However, for the purposes of completeness, these include:

- Local Municipality: Land Rezoning Permit. LUPO Ordinance 15 of 1985.
- National Energy Regulator of South Africa (NERSA): Generation License.
- Eskom: Connection agreement and Power Purchase Agreement (PPA).

- Makhana Local Municipality Spatial Development Framework (SDF), Integrated Development Plan (IDP) and municipal by-laws.
- Sarah Baartman District Municipality SDF and IDP.

FINAL

5 DESCRIPTION OF THE ENVIRONMENT: BIOPHYSICAL

The following chapter outlines the biophysical features of the property portions on which the Albany WEF is being proposed.

5.1 GEOLOGY AND LANDFORM

The Eastern Cape Province contains a wide variety of landscapes, from the Karoo (the semi-desert region of the central interior) to mountain ranges and gentle hills rolling down to the sea. The climate and topography gives rise to the great diversity of vegetation types and habitats found in the region.

5.2 TOPOGRAPHY

The project site is characterised by undulating hills with the elevation ranging from 480 to 760 metres above sea level (asl). Project site is generally steep with a maximum slope of 43.2% and average slope of 6.7%.

5.3 GEOLOGY

The project area is underlain mainly by rocks of the Lake Mentz of the Subgroup of the Witteberg Formation. Giving rise to the prevalent shale bedrock which is found occur on most of the project area. Soils in this region are sandy, generally of Glenosa and Mispah formations which are lithic soils, these are said to be young soils occurring on weathered rock (Mucina and Rutherford, 2006; Fey, 2010).

Small portions of the silcrete rocks of the Grahamstown Group, Tillite soils of the Dwyka group of the Karoo Supergroup and Arenite rocks of the Weltevrede Group of the Cape Supergroup are also found to occur in the project area. Please see Figure 5-1.

The Grahamstown silcrete is said to be a result of chemical processes undergone by the soil profile during an extensive period of weathering and erosion (Büttner et al, 2015). As a result of these chemical processes, these areas have clay-rich weathered rock which are a residue left by silica leaching out of the underlying shale and tillite (Büttner et al, 2015).

SANBI (2016) describes tillite soils as hard stony clay which drain poorly, are generally acidic and waterlogged during the wet season. Whilst Arenite is medium sized sedimentary rocks which are sandy.

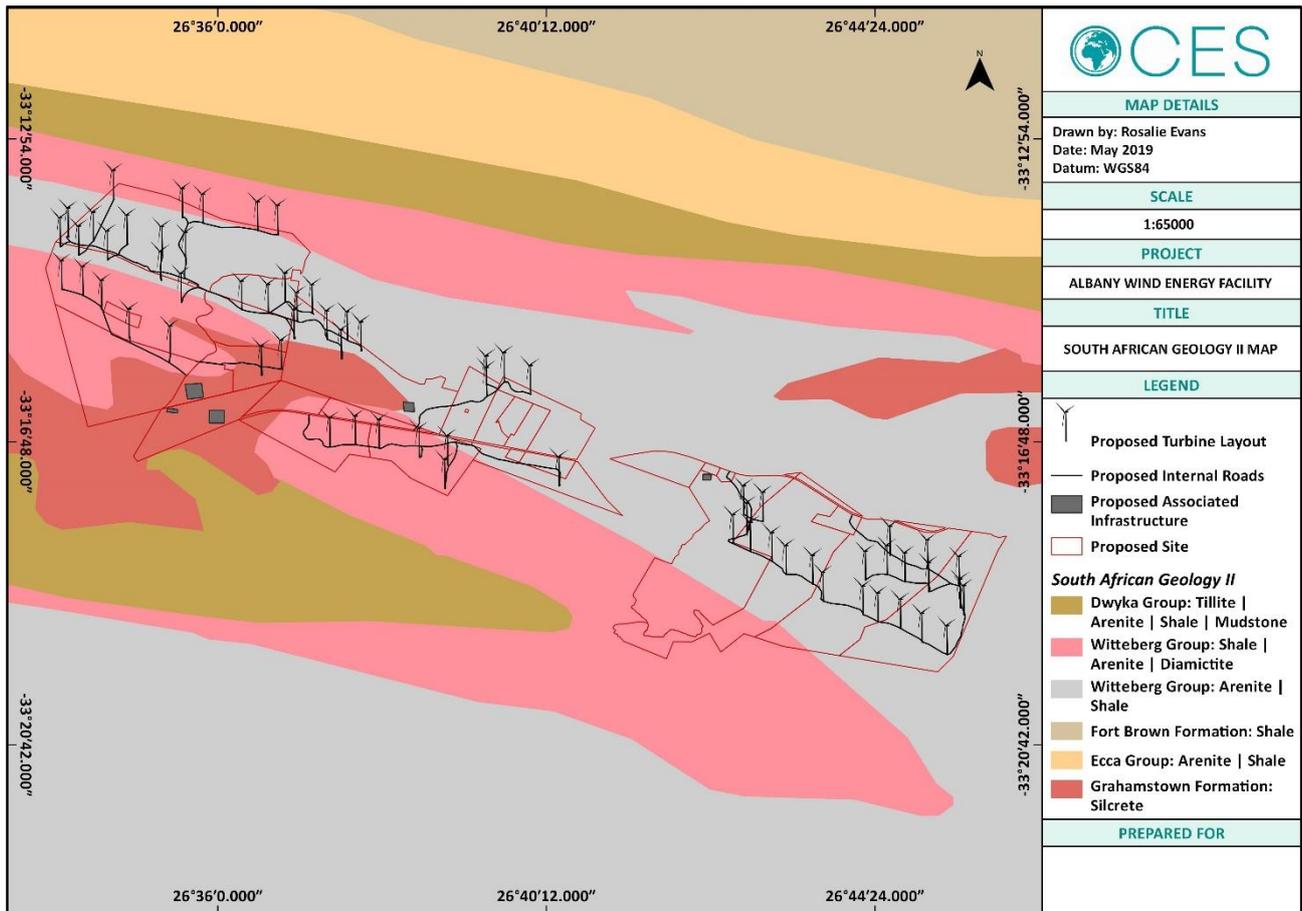


Figure 5-1: Geology Map of the Albany WEF site.

5.4 CLIMATE

The Eastern Cape Province of South Africa has a complex climate due to its location at the confluence of two climatic regimes, namely temperate and subtropical. As a result, there are wide variations in temperature, rainfall and wind patterns, mainly as a result of movements of air masses, altitude, mountain orientation and the proximity of the Indian Ocean.

The Makana region falls in the heart of three major transitional climatic regions:

- From the south-western region there is a maritime influence of winter rainfall. In this region it changes to spring and autumn rainfall with south easterly winds bringing torrential rains which are very variable and inconsistent.
- From Makhanda north-eastwards the rainfall changes to a general summer rainfall.
- The interior south of the Winterberg is affected by both these climatic patterns, with cold fronts and little winter rain, but summer rain from sporadic thunder showers.

Winds and alternating cold and warm fronts thus make for a very variable climate throughout the region. The area normally receives approximately 466 mm of rainfall per year and because it receives most of its rainfall during autumn/early winter it has a Mediterranean climate. The lowest rainfall (16 mm) occurs in July and the highest (57 mm) in March. The monthly distribution of average daily maximum temperatures indicates that the average midday temperatures range from 18.9 °C in July to 26.8 °C in February (saexplorer, 2016). The region is the coldest during July with average night-time temperatures of 5.6 °C (saexplorer, 2016).

Table 5-1: Makhanda/Grahamstown Climate Table (Source: en.climate-data.org).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Temp (°C)	20.7	20.9	20	17.6	15.3	13	12.4	13.5	15.1	16.1	17.9	19.5
Min. Temp (°C)	14.6	15.1	14.4	11.3	8.6	5.9	5.4	6.4	8.5	10	12.2	13.5
Max. Temp (°C)	26.8	26.8	25.7	24	22	20.1	19.4	20.7	21.8	22.3	23.6	25.6
Precipitation / Rainfall (mm)	60	68	75	47	43	33	36	51	61	75	68	66

5.5 LANDCOVER

The site visit illustrated that the project area is used for various activities such as livestock farming, mining land, agriculture (plantation and cultivated land) and households. Figure 5-2 illustrates the landcover of the Albany WEF site and surrounding areas (Eastern Cape Land Use Data, AGIS).

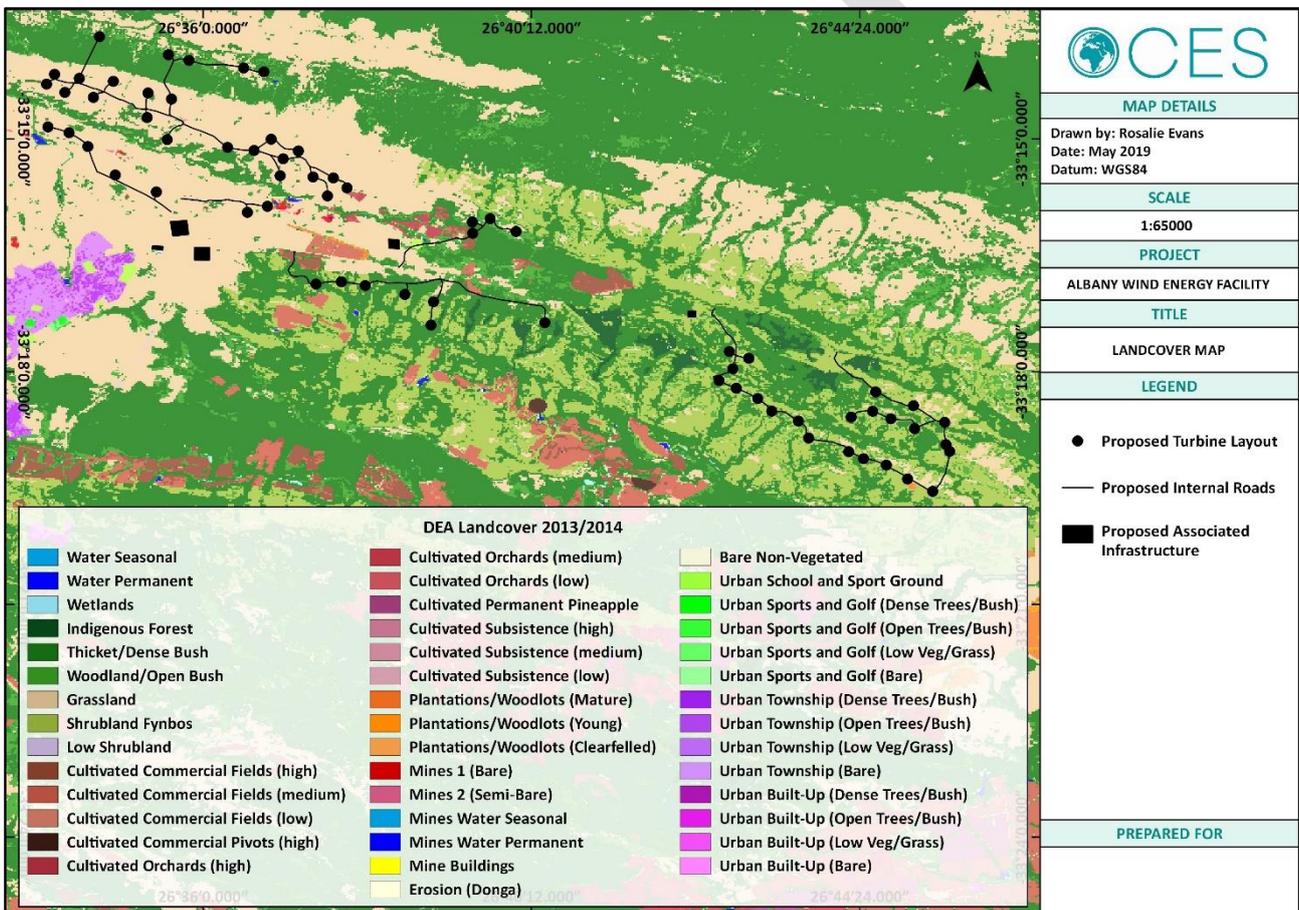


Figure 5-2: Landcover Map of the Albany WEF site and surrounding areas.

5.6 VEGETATION & FLORISTICS

The project area falls within three (3) biomes, namely:

- Fynbos Biome (Suurberg Shale Fynbos and Suurberg Quartzite Fynbos);
- Savanna Biome (Bisho thornveld vegetation); and
- Thicket biome (Kowie Thicket vegetation).

The Fynbos Biome which takes its name from the dominant vegetation in the region – fynbos (Mucina and Rutherford, 2006). This biome consists of three (3) quite different, naturally fragmented vegetation types (fynbos, renosterveld and strandveld) that occur in the summer and winter rainfall areas. Fynbos comprises of species that are typically small-leaved, evergreen shrubs and that rely on fire for regeneration. This Biome is endemic to South Africa and occupies most of the Cape Fold Belt, the adjacent lowlands between mountains and the Atlantic Ocean in the west and south as well as between the mountains and the Indian Ocean in the south.

The Savannah Biome is the most widespread biome in Africa occurring in eight provinces namely; the Northern Cape, North-West Province, Free-state, Gauteng, Limpopo, Mpumalanga, Kwa-Zulu Natal and the Eastern Cape, covering about 32.8% of South Africa (Mucina and Rutherford, 2006). This vegetation type generally has an herbaceous layer which is dominated by grasses and a tree layer which ranges from sporadic to very open (Mucina and Rutherford, 2006).

The Subtropical thicket biome occurs within the Western and the Eastern Cape, and is one of the seven biomes found in South Africa (Knight and Cowling, 2003). Its distribution ranges down the coast, up the river valleys and into the dry mountainous areas of the South-west. The Valley thicket in which most of the project area lies is said to be one of the most common vegetation types of the Eastern Cape, where its distribution range is restricted to the hot dry river valleys of the southern and south-eastern Cape.

The Thicket biome is described by Lubke (in Low and Rebelo,1998) as a closed shrubland to low forest dominated by evergreen, sclerophyllous or succulent trees, shrubs and vines, where several of these species have stem spines. It is often dense, generally divided into strata and has little herbaceous cover. Some thicket types are referred to as “transitional thicket” due to them having similar floristic components with many other phytochoria and occurring within almost all formal biomes (Low and Rebelo, 1998). The Thicket vegetation contains a small number of endemic species, most of which are succulents of karoo origin such as Plakkies (*Crassula* spp.) and Sheep Fig (*Delosperma* spp.) (Low and Rebelo,1998).

5.6.1 SANBI VEGETATION MAP

Mucina and Rutherford (2006) developed the National Vegetation map as part of a South African National Biodiversity Institute (SANBI) funded project: “It was compiled in order to provide floristically based vegetation units of South Africa, Lesotho and Swaziland at a greater level of detail than had been available before.” The map was developed using a wealth of data from several contributors and has allowed for the best national vegetation map to date, the last being that of Acocks developed over 50 years ago. The SANBI Vegetation map informs finer scale bioregional plans such as STEP. This SANBI Vegmap project has two main aims:

- “to determine the variation in and units of southern African vegetation based on the analysis and synthesis of data from vegetation studies throughout the region, and
- to compile a vegetation map. The aim of the map was to accurately reflect the distribution and variation on the vegetation and indicate the relationship of the vegetation with the environment. For this reason the collective expertise of vegetation scientists from universities and state departments were harnessed to make this project as comprehensive as possible.”

The map and accompanying book describes each vegetation type in detail, along with the most important species including endemic species and those that are biogeographically important. This is the most comprehensive data for vegetation types in South Africa. According to this spatial planning tool, five vegetation types are found to occur within the project area (Figure 5-3).

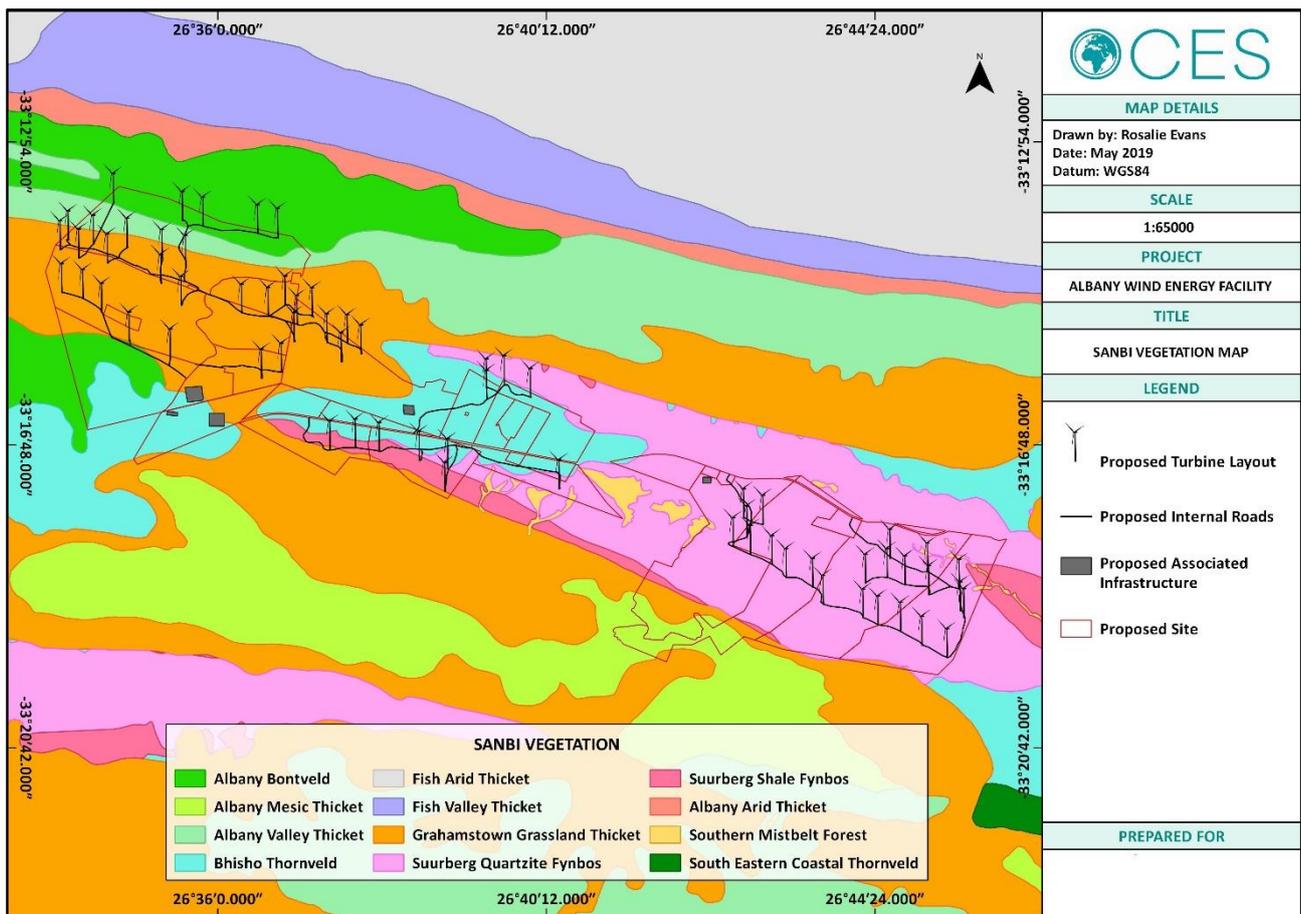


Figure 5-3: SANBI Vegetation Map of the Albany WEF site and surrounding areas.

A) SUURBERG QUARTZITE FYNBOS

This vegetation type occurs in the Eastern Cape Province, from Baroe to Kapriverberge which is east of Makhanda. It is associated with low rounded hills and mountains and supports low to medium-high, closed, ericoid shrubland or grassland with a closed restioid and/or grass understory. This vegetation type is characterised by Grassy fynbos which is interspersed with localised patches of dense proteoid and ericaceous fynbos (Mucina and Rutherford, 2006). It is classified as LEAST THREATENED, with a conservation target of 30%. It is statutorily conserved in the Greater Addo Elephant National Park (15%) and an additional 16% in a number of private reserves.

B) SUURBERG SHALE FYNBOS

This vegetation type occurs in highly fragmented patches on low mountains or hills around Riebeeck East and Makhanda (Eastern Cape Province). It is associated with low to medium high, closed, ericoid shrubland or grassland, with a closed restioid and/or grass understory. Graminoid fynbos, with localised patches of dense proteoid fynbos is also present. This vegetation type is classified as LEAST THREATENED with a conservation target of 23%. About 40% is statutorily conserved in the Greater Addo Elephant National Park and in a number of private reserves.

C) SOUTHERN MISTBELT FOREST (NO TURBINES OR INFRASTRUCTURE PLACED IN THIS VEGETATION TYPE)

These forests occur in the Kwa-Zulu Natal and Eastern Cape Provinces. They occur as patches of varying size in fire-shadow habitats on south- and southeast-facing slopes and along the Great Escarpment. At high altitudes these forests are up to 15-20 m tall and multi-layered while forests found at lower altitudes are low and less structured but are still species-rich. *Afrocarpus falcatus* is a dominant tree species. Other deciduous and semi-deciduous species that are dominant include *Celtis africana*, *Calodendrum capense*, *Vepris*

lanceolata and *Zanthoxylum davyi*. This vegetation type is classified as LEAST THREATENED with a conservation target of 30% and about 8% statutorily conserved in a number of reserves.

D) GRAHAMSTOWN GRASSLAND THICKET

This vegetation type occurs on coastal forelands of the Albany region, spanning from around Makhanda toward the Great Fish River in the east, Port Alfred and Alexandria in the south, and Sidbury in the west. A small isolated patch also occurs at the southern foot of the Swartwatersberg north of Alicedale. The vegetation is dominated by a mosaic of low thicket, which consists of small bush clumps in a matrix of short grassland vegetation. Grahamstown Grassland Thicket is poorly protected with approximately 19 % being conserved in the Buffalo Kloof Protected Environment and Indalo Protected Environment.

E) BHISHO THORNVELD

This vegetation type is found to occur on dissected hills and low mountains around Makhanda. This vegetation is open savannah characterised by small trees of *Acacia natalia* with a short to medium, dense, sour grassy understory, usually dominated by *Themeda triandra* when in good condition. A diversity of other woody species are usually present and often increase under conditions of overgrazing. This vegetation type is considered as LEAST THREATENED. Only 0.2% statutory conserved in the Great Fish River Reserve and about 2% conserved in private game reserves.

F) ALBANY BONTVELD

This vegetation type occurs to the north and northeast of Makhanda; mainly on flat-topped hills between Table Hill and the southern end of the Ecca Pass. The vegetation is dominated by a mosaic of low thicket, which consists of bush clumps in a matrix of shrubland which includes a mixture of fynbos and karroid elements. Albany Bontveld is poorly protected with approximately 19 % being conserved in the Ecca Nature Reserve and Indalo Protected Environment.

G) ALBANY VALLEY THICKET

This vegetation type mainly occurs on the forelands of the Albany Region where it occurs along the middle to upper reaches of the river valleys of the Bushmans, Kariega, Kowie, Kleinemonde and Kap Rivers, extending past the Zuurberg Mountains north- and eastward of Alicedale and Riebeeck East. Also in open valleys around Nanaga. The vegetation consists of medium-sized to tall thicket, including small trees and woody shrubs. Albany Valley Thicket is moderately protected with approximately 19 % being conserved in the Addo Elephant National Park, Buffalo Kloof Protected Environment and Indalo Protected Environment.

5.6.2 SUBTROPICAL THICKET ECOSYSTEM PROGRAMME (STEP)

The Subtropical Thicket Ecosystem Planning (STEP) Project aims to identify priority areas that would ensure the long-term conservation of the subtropical thicket biome and to ensure that the conservation of this biome is considered in the policies and practices of the private and public sector that are responsible for land-use planning and the management of natural resources in the region (Pierce et al. 2005). STEP looked specifically at the thicket biome and has provided a finer scale map of the project area than the Mucina and Rutherford map explaining why the two vegetation maps look slightly different.

STEP (Figure 5-4) identifies seven (7) vegetation types in this region. Pierce and Mader (2006) define the following vegetation types from which source these descriptions are derived:

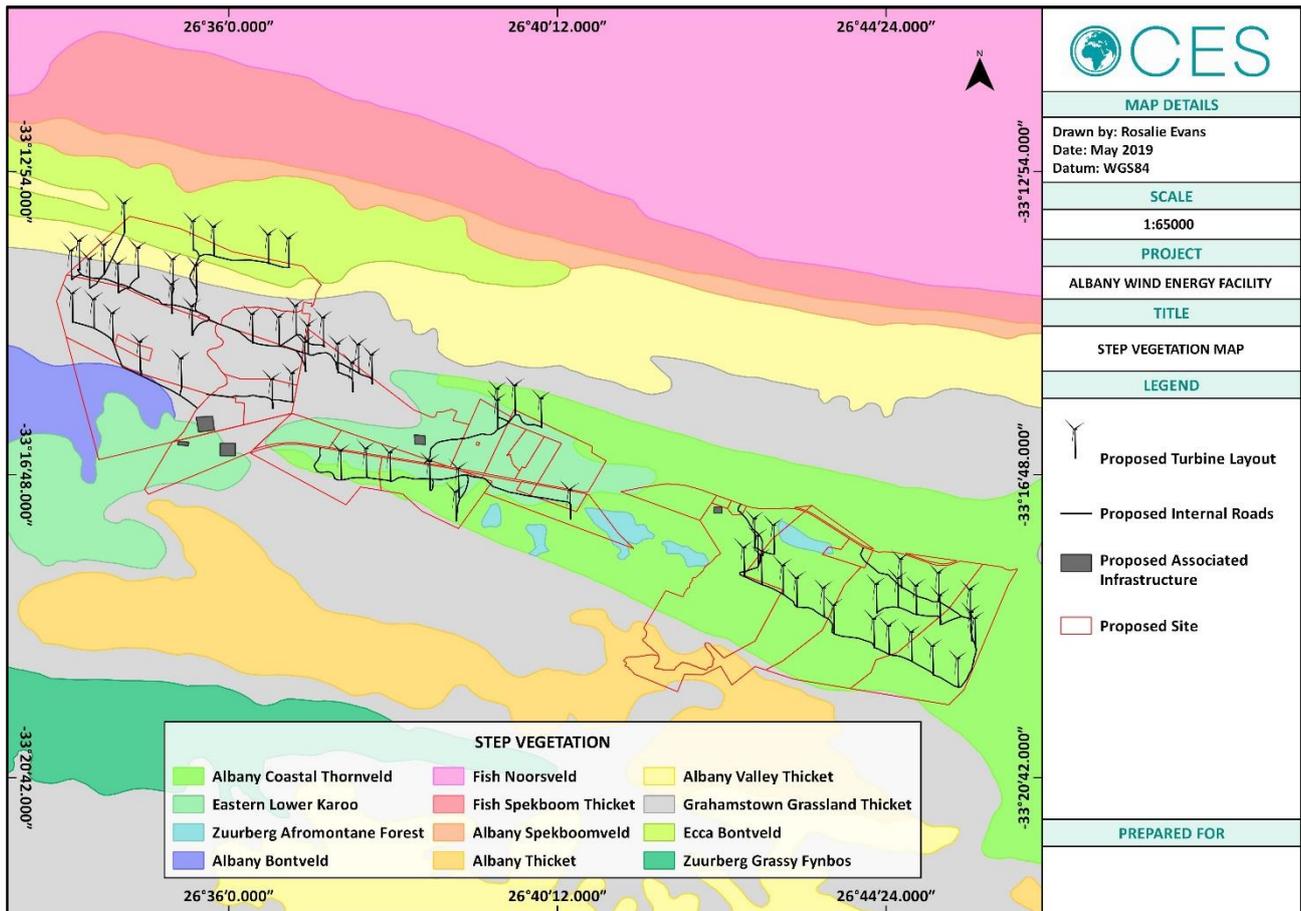


Figure 5-4: STEP Vegetation Map of the Albany WEF site and surrounding areas.

A) ALBANY COASTAL THORNVELD

The vegetation type occurs within the Savannah Biome and is characterised by *Acacia Karoo* (Sweet thorn trees), *Themeda triandra* (dense sward of grass), *Heteropogon contortus* (Common Spear Grass), *Tristachya leucothrix* (Hairy Trident Grass) and a mixture of fynbos elements. This vegetation type is classified as CURRENTLY NOT VULNERABLE.

B) ALBANY THICKET

This vegetation type is characterised by tree species such as *Gymnosporia buxifolia* (Common Spike-thorn), *Olea africana subsp. africana* (Wild olive), *Schotia latifolia* (bosboerboon) and *Allophylus decipiens* (false current). Common species include *Euphorbia triangularis* (River Euphorbia) and *Canthium inerme* (turkey-berry tree). In some areas it resembles a forest and is considered as CURRENTLY NOT VULNERABLE.

C) EASTERN LOWER KAROO

This vegetation type is found to occur in the Nama Karoo Biome, it is characterised by dwarf shrubs such as *Pentzia incana*, *Felicia muricata*, *Rosenia humilis* and *Drosanthemum spp.* Grass species found to occur include *Aristida diffusa* and *Eragrostis lehmanniana*. This vegetation type is classified as CURRENTLY NOT VULNERABLE.

D) GRAHAMSTOWN GRASSLAND THICKET

This vegetation type is typical of the Albany thicket being characterised by tree species such as *Rhus pallens*, *Scutia myrtina*, *Cussonia spicata* and *Diospyros dicrophylla*. The grassland matrix typically has many fynbos elements such as *Erica spp* and *Restio triticeus* as well as numerous species of rare localised endemic species, such as in the genus *Brachystelma*. This vegetation type is classified as CURRENTLY NOT VULNERABLE.

E) ALBANY VALLEY THICKET

This vegetation type is characterised by tree species *Pappea capensis* and *Euclea undulata*. Succulent species such as *Aloe africana* and *Kalanchoe rotundifolia* are typical in this vegetation type and *Euphorbia tetragona* is easily recognised because of its abundance and height. This vegetation type is classified as VULNERABLE. No turbines or infrastructure will impact this vegetation type as per the current layout.

F) ECCA BONTVELD

Thicket clumps here are dominated by *Schotia afra* and *Euphorbia bothae*. This vegetation type consists of a mixture of various plants from the succulent karoo biome such as *Pteronia incana*, nama karoo biome such as *Pentzia incana*, grassland biome such as *Themeda triandra* and the thicket component is fragmented containing various flora with many of its geophytes being endemic to this unit. This vegetation type is classified as CURRENTLY NOT VULNERABLE.

G) ZUURBURG AFROMONTANE FOREST

This forest is generally greater than 10 m in height, found to occur in sheltered mountain kloofs, common species include *Afrocarpus*, *Podocarpus*, smaller trees and shrubs which are often spiny. This vegetation type is classified as CRITICALLY ENDANGERED.

The following figure (Figure 5-5) indicates the conservation status of the Albany WEF site.

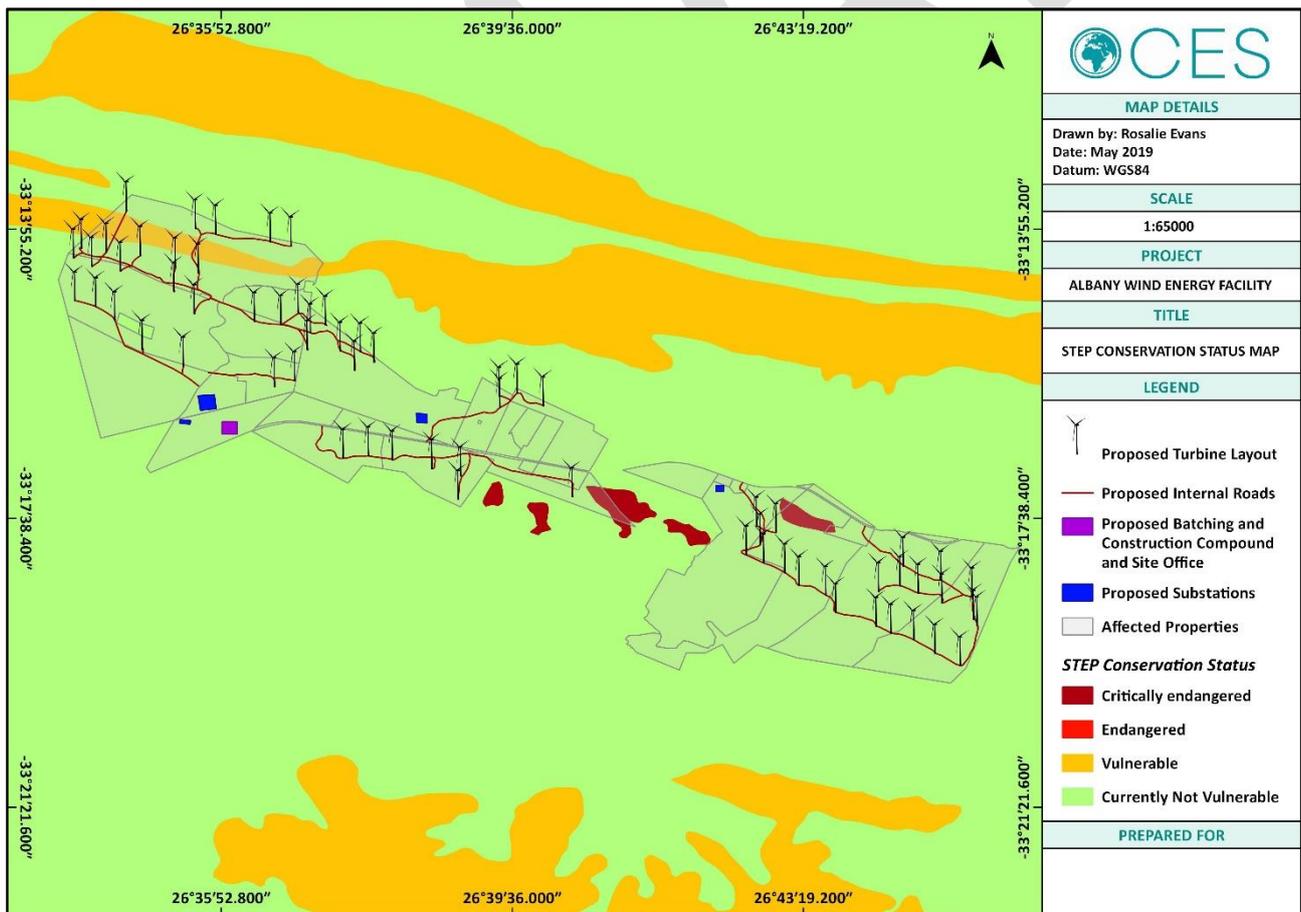


Figure 5-5: STEP Conservation Status Map of the Albany WEF site and surrounding areas.

5.7 EASTERN CAPE BIODIVERSITY CONSERVATION PLAN

The ECBCP (currently being reviewed) is a first attempt at detailed, low-level conservation mapping for land-use planning purposes. Specifically, the aims of the Plan were to map critical biodiversity areas through a systematic conservation planning process. The current biodiversity plan includes the mapping of priority aquatic features, land-use pressures, and critical biodiversity areas and develops guidelines for land and resource-use planning and decision-making.

The main outputs of the ECBCP are “critical biodiversity areas” or CBAs, which are allocated the following management categories:

- CBA 1 = Maintain in a natural state
- CBA 2 = Maintain in a near-natural state

The ECBCP maps CBAs based on extensive biological data and input from key stakeholders. The ECBCP, although mapped at a finer scale than the National Spatial Biodiversity Assessment (Driver et al., 2005) is still, for the large part, inaccurate and “course”. Therefore it is imperative that the status of the environment, for any proposed development MUST first be verified before the management recommendations associated with the ECBCP are considered (Berliner and Desmet, 2007). It is also important to note that in absence of any other biodiversity plan, the ECBCP has been adopted by the Provincial Department of Economic Development and Environmental Affairs as a strategic biodiversity plan for the Eastern Cape.

According to the ECBCP spatial planning tool the project area occurs in an area categorised as a CBA 1 and CBA 2 area (Figure 5-6 A and B).

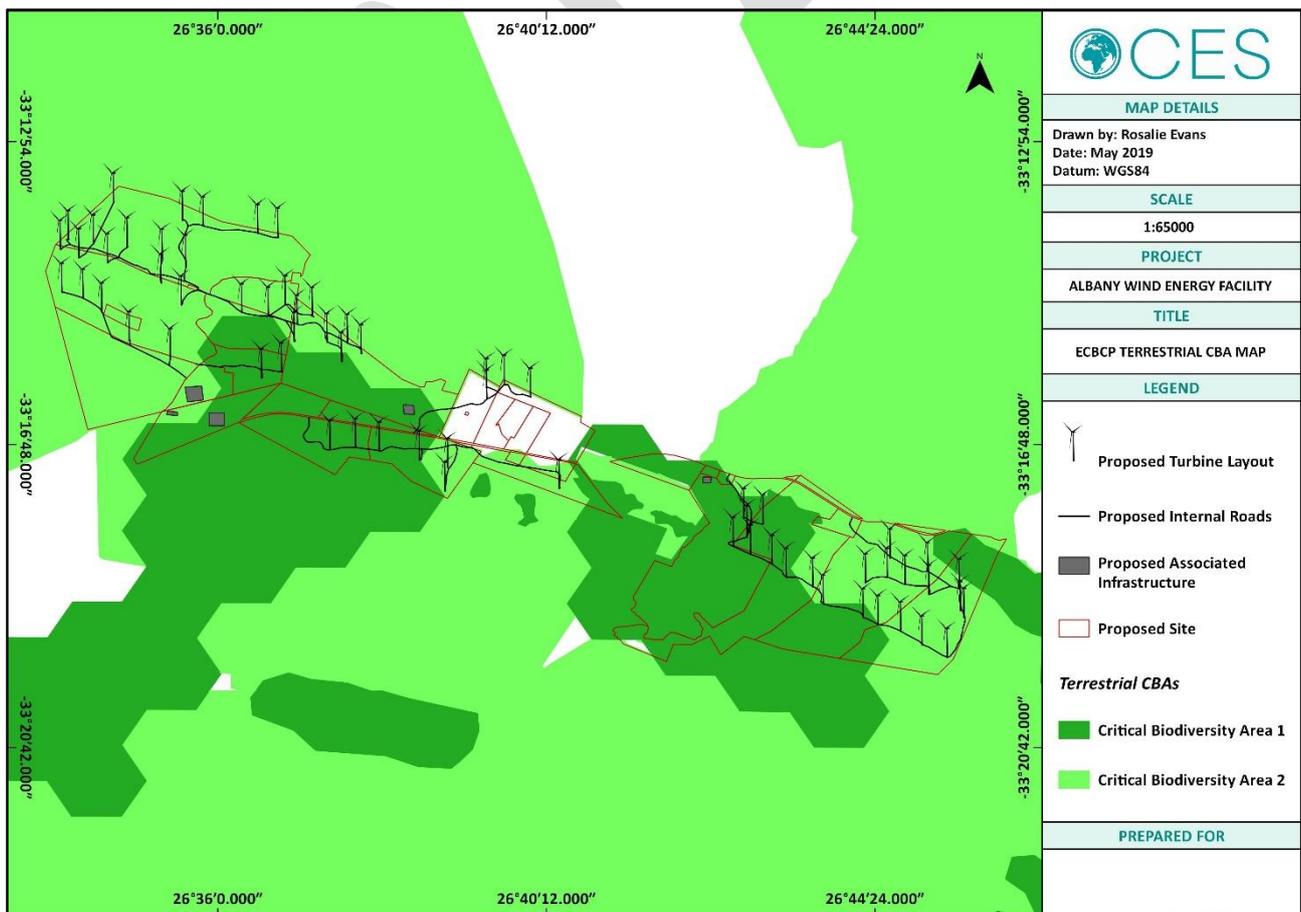


Figure 5-6 A: Terrestrial CBA (ECBCP) Map of the Albany WEF site and surrounding areas.

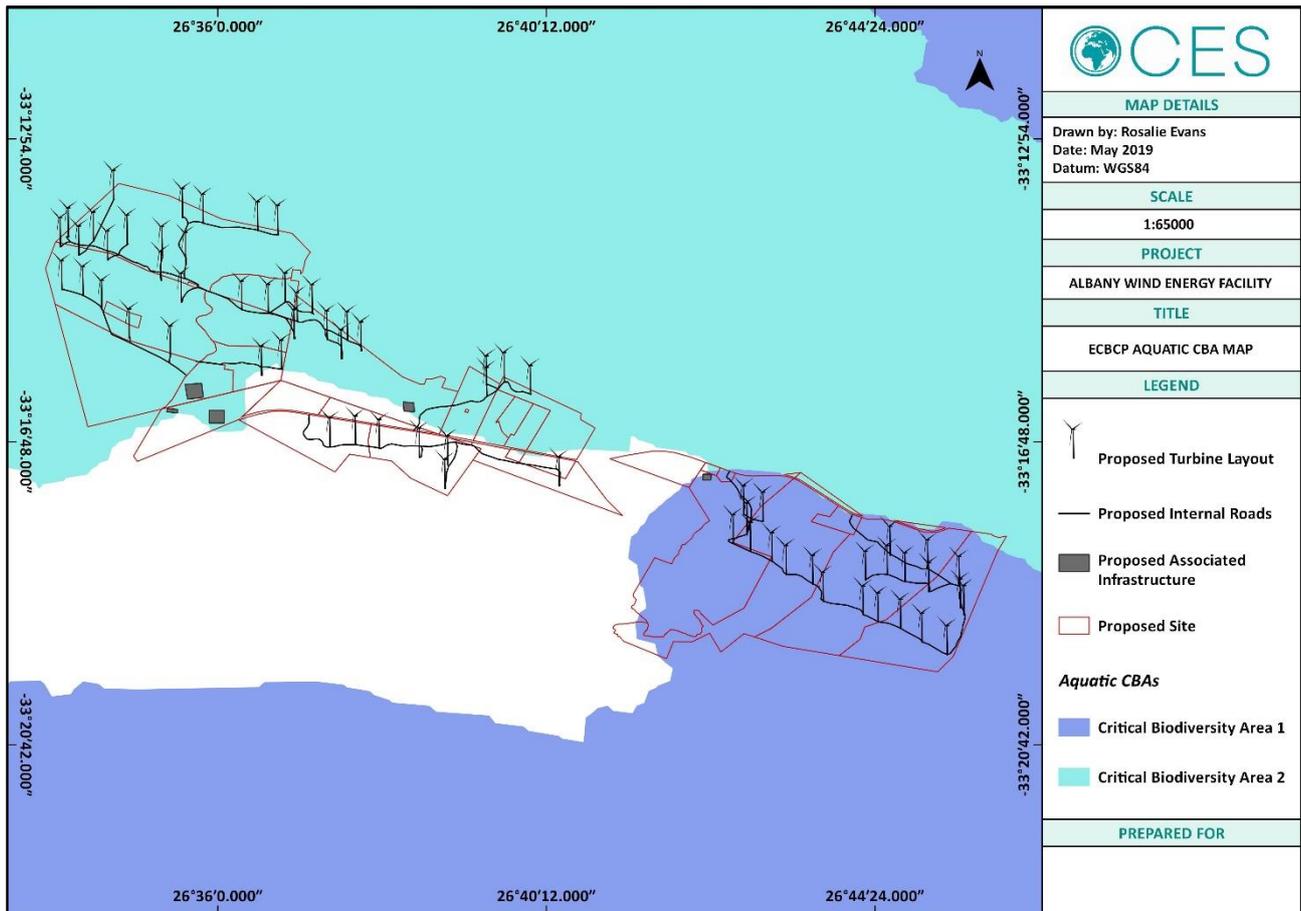


Figure 5-6 B: Aquatic CBA (ECBCP) Map of the Albany WEF site and surrounding areas.

CBA 1 areas are those which should be maintained in a near natural state. The ECBCP recognizes that some of the areas that are classified as CBAs were in a degraded state, in such cases those classified as CBA 1 areas, are areas which are said to be “important remaining (degraded) areas”, where the area has little or no intact biodiversity remaining but is said to have potential to regain a CBA 1 status through rehabilitation. When related to the Biodiversity Land Management Classes (BLMCs), a degraded CBA 1 area needs to be maintained in a near natural state (landscape).

Whilst the CBA 1 categorised areas, had areas with rocky outcrop, SCC and watercourses, forest patches. Sections in the Eastern section (lower portion of the project) area had high invasion of Alien invasive species and was not in pristine condition. With that one would not deem it as a CBA 1 as there is high invasion of Alien invasive species, which have altered the vegetation found in these areas.

CBA 2 areas should be managed to maintain the environment in a near-natural state. The proposed project area is classified as a CBA 2 (i.e. in a near natural state) varies from areas.

5.8 FAUNA

Amphibians and reptiles are well represented in sub-Saharan Africa. However, distribution patterns in southern Africa are uneven both in terms of species distribution and in population numbers (du Preez and Carruthers, 2009). Climate, centres of origin and range restrictions are the three main factors that determine species distribution. The eastern coast of South Africa has the highest amphibian diversity and endemism while reptile diversity is generally highest in the north eastern extremes of South Africa and declines to the south and west (Alexander and Marais, 2010).

5.8.1 REPTILES

South Africa has 350 species of reptiles, comprising 213 lizards, 9 worm lizards, 105 snakes, 13 terrestrial tortoises, 5 freshwater terrapins, 2 breeding species of sea turtle and 1 crocodile (Branch, 1998). Of those 350 reptile species, the Eastern Cape is home to 133 which include 21 snakes, 27 lizards and eight chelonians (tortoises and turtles). The majority of these are found in Mesic Succulent Thicket and riverine habitats.

Consultation of the Animal Demography Unit (ADU) historical records indicates that 62 species of reptiles are likely to occur in the project site (QDS 3326 BA, 3326 BC, and 3326BD). None of these species are conserved under the IUCN and only the Southern African Python (*Python natalensis*) is listed as PROTECTED on the National Environmental Management: Biodiversity Act (NEMBA). However, all lizards and tortoises are listed as a SCHEDULE II species on the PNCO list and will therefore require permits for their removal. Table 5-1 lists all of the reptilian Species of Conservation Concern (SCC) which are likely to occur within the study site.

Table 5-2: Reptile species of conservation concern that are likely to occur in the project area (ADU).

SCIENTIFIC NAME	COMMON NAME	SA RED LIST CATEGORY (SARCA)	IUCN	NEMBA	CITES	PNCO	REGION ENDEMIC	RECORDED ON SITE
<i>Boaedon capensis</i>	Brown House Snake	Least Concern	-	-	-	Sch. II	-	Yes
<i>Bradypodion ventrale</i>	Eastern Cape Dwarf Chameleon	Least Concern	-	-	App. II	-	Yes	-
<i>Chamaesaura anguina anguina</i>	Cape Grass Lizard	Least Concern	-	-	-	Sch. II	Yes	-
<i>Chersina angulata</i>	Angulate Tortoise	Least Concern	-	-	App. II	Sch. II	-	-
<i>Cordylus cordylus</i>	Cape Girdled Lizard	Least Concern	-	-	App. II	Sch. II	Yes	Yes
<i>Dasypeltis scabra</i>	Rhombic egg-eater	Least Concern	-	-	-	Sch. II	-	-
<i>Dasypeltis inornata</i>	Southern Brown Egg-eater	Least Concern	-	-	-	Sch. II	Yes	-
<i>Duberria lutrix lutrix</i>	South African Slug-eater	Least Concern	-	-	-	Sch. II	Yes	Yes
<i>Homopus areolatus</i>	Parrot-beaked Tortoise	Least Concern	-	-	App. II	Sch. II	Yes	Yes
<i>Lamprophis fuscus</i>	Yellow-bellied House Snake	Least Concern	-	-	-	Sch. II	Yes	-
<i>Lycodonomorphus rufulus</i>	Brown Water Snake	Least Concern	-	-	-	Sch. II	-	Yes
<i>Lycodonomorphus inornatus</i>	Olive House Snake	Least Concern	-	-	-	Sch. II	Yes	-
<i>Lycodonomorphus laevisimus</i>	Dusky-bellied Water Snake	Least Concern	-	-	-	Sch. II	Yes	-
<i>Lycophidion capense capense</i>	Cape Wolf Snake	Least Concern	-	-	-	Sch. II	-	-
<i>Nucras lalandii</i>	Delalande's Sandveld Lizard	Least Concern	-	-	-	Sch. II	-	Yes
<i>Nucras taeniolata</i>	Albany Sandveld Lizard	Near Threatened	-	-	-	Sch. II	Yes	-
<i>Pedioplanis burchelli</i>	Burchell's Sand Lizard	Least Concern	-	-	-	Sch. II	Yes	Yes

SCIENTIFIC NAME	COMMON NAME	SA RED LIST CATEGORY (SARCA)	IUCN	NEMBA	CITES	PNCO	REGION ENDEMIC	RECORDED ON SITE
<i>Pedioplanis lineocellata pulchella</i>	Common Sand Lizard	Least Concern	-	-	-	Sch. II	-	-
<i>Philothamnus natalensis occidentalis</i>	Western Natal Green Snake	Least Concern	-	-	-	Sch. II	Yes	-
<i>Philothamnus semivariegatus</i>	Spotted Bush Snake	Least Concern	-	-	-	Sch. II	-	-
<i>Python natalensis</i>	Southern African Python	Least Concern	-	P	App. II	-	-	-
<i>Stigmochelys pardalis</i>	Leopard Tortoise	Least Concern	-	-	App. II	Sch. II	-	-
<i>Tropidosaura montana rangeri</i>	Ranger's Mountain Lizard	Not listed	-	-	-	Sch. II	-	Yes
<i>Varanus niloticus</i>	Water Monitor	Least Concern	-	-	App. II	-	-	-

5.8.2 AMPHIBIANS

Amphibians are an important and often neglected component of terrestrial vertebrate faunas. They are well represented in sub-Saharan Africa, from which approximately 600 species have been recorded (Frost, 1985). A relatively rich amphibian fauna occurs in the Eastern Cape, where a total of 32 species and sub-species occur. This represents almost a third of the species known from South Africa. Knowledge of amphibian species diversity in the study area is limited. However, according to the Animal Demographics Unit's Reptile Database, 17 species of frog have been documented in the Quarter Degree Squares that the project area falls in. Of these 17 species, none are listed as Schedule 1 on the PNCO list. However, all frogs and toads are listed as SCHEDULE II species on the PNCO list and will therefore require permits for their removal. None of these species are listed on NEMBA, and only the Giant Bull Frog (*Pyxicephalus adspersus*) is listed as NEAR THREATENED on IUCN's Red Data List. Please see Table 5-3 below for a full species list of frogs and toads which are likely to be found within the project area.

Table 5-3: Amphibian species of conservation concern that are likely to occur in the project area (ADU).

SCIENTIFIC NAME	COMMON NAME	IUCN	NEMBA	CITES	PNCO	RECORDED ON SITE
<i>Amietia delalandii</i>	Delalande's River Frog	Least Concern	-	-	Schedule II	
<i>Breviceps adspersus</i>	Bushveld Rain Frog	Least Concern	-	-	Schedule II	Yes
<i>Cacosternum boettgeri</i>	Boettger's Caco	Least Concern	-	-	Schedule II	Yes
<i>Cacosternum nanum</i>	Bronze Caco	Least Concern	-	-	Schedule II	Yes
<i>Hyperolius marmoratus</i>	Painted Reed Frog	Least Concern	-	-	Schedule II	Yes
<i>Hyperolius semidiscus</i>	Yellowstriped Reed Frog	Least Concern	-	-	Schedule II	
<i>Kassina senegalensis</i>	Bubbling Kassina	Least Concern	-	-	Schedule II	Yes
<i>Pyxicephalus adspersus</i>	Giant Bull Frog	Near Threatened	-	-	Schedule II	

<i>Sclerophrys capensis</i>	Raucous Toad	Least Concern	-	-	Schedule II	Yes
<i>Sclerophrys pardalis</i>	Leopard Toad	Least Concern	-	-	Schedule II	
<i>Semnodactylus wealii</i>	Rattling Frog	Least Concern	-	-	Schedule II	
<i>Strongylopus fasciatus</i>	Striped Stream Frog	Least Concern	-	-	Schedule II	
<i>Tomopterna natalensis</i>	Natal Sand Frog	Least Concern	-	-	Schedule II	
<i>Tomopterna tandyi</i>	Tandy's Sand Frog	Least Concern	-	-	Schedule II	
<i>Vandijkophrynus gariensis gariensis</i>	Karoo Toad (subsp. gariensis)	Not listed	-	-	Schedule II	
<i>Xenopus laevis</i>	Common Platanna	Least Concern	-	-	Schedule II	Yes
<i>Strongylopus grayii</i>	Clicking Stream Frog	Least Concern	-	-	Schedule II	Yes

5.8.3 MAMMALS

Large game makes up less than 15% of the mammal species in South Africa and a much smaller percentage in numbers and biomass. In developed and farming areas, this percentage is greatly reduced, with the vast majority of mammals present being small or medium-sized.

According to NEMBA, four PROTECTED terrestrial mammal species and two VULNERABLE terrestrial species have distributions that coincide with the project area (Table 5-4). Four (4) species are listed as either ENDANGERED or VULNERABLE on the South African Red Data List, and three (3) species are listed as either ENDANGERED or VULNERABLE on the IUCN Red Data List. Most terrestrial mammal species will tend to avoid areas disturbed during anthropogenic activities. However, there is the possibility that smaller and less mobile mammal species, such as moles, will be encountered. The Giant Golden Mole (*Chrysospalax trevelyani*) is listed as an ENDANGERED species in the IUCN Red Data List, VULNERABLE on the SA Red Data List, and has a VULNERABLE status according to NEMBA.

Table 5-4: Terrestrial Mammal species of conservation concern that are likely to occur in the project area (ADU).

SCIENTIFIC NAME	COMMON NAME	SA RED LIST	IUCN	NEMBA	PNCO
<i>Atelerix frontalis</i>	South African Hedgehog	NT	LC	PR	Schedule II
<i>Chrysospalax trevelyani</i>	Giant Golden Mole	VU	EN	VU	-
<i>Felis nigripes</i>	Black-footed Cat	LC	VU	PR	
<i>Mellivora capensis</i>	Honey Badger	NT	LC	PR	Schedule II
<i>Myosorex sclateri</i>	Sclater's Tiny Mouse Shrew	EN	LC	-	Schedule II
<i>Mystromys albicaudatus</i>	White-tailed Mouse	EN	EN	-	-
<i>Philantomba monticola</i>	Blue Duiker	VU	LC	VU	Schedule II
<i>Vulpes chama</i>	Cape Fox	LC	LC	PR	Schedule II

According to the 6-Month Progress Report compiled by Inkululeko Wildlife Services, 14 bat species have a high likelihood of occurring on site. Of these species, 7 are found on either the South African Red Data List or the IUCN Red Data List (Table 5-5).

Table 5-5: Bat species of conservation concern likely to be found within the project area.

SCIENTIFIC NAME	COMMON NAME	SA RED LIST	IUCN	NEMBA	PNCO
<i>Kerivoula lanosa</i>	Lesser Woolly Bat	NT	LC	-	Schedule II
<i>Myotis tricolor</i>	Temminck's Mouse-eared Bat	NT	LC	-	Schedule II
<i>Miniopterus schreibersii</i>	Schreibers Long-fingered bat	LC	NT	-	Schedule II
<i>Miniopterus fraterculus</i>	Lesser Long-fingered bat	NT	LC	-	Schedule II
<i>Miniopterus natalensis</i>	Natal Long-fingered bat	NT	LC	-	Schedule II
<i>Rhinolophus capensis</i>	Cape Horseshoe Bat	NT	LC	-	Schedule II
<i>Rhinolophus swinnyi</i>	Swinny's Horseshoe Bat	EN	LC	-	Schedule II

5.8.4 AVIFAUNA

While there are nine (9) bird species are endemic to South Africa, there are no species that are endemic to the Eastern Cape. However, there are 62 threatened species within the Eastern Cape Province (Barnes, 2000). Most of these species occur in grasslands or are associated with wetlands, indicating a need to conserve what is left of these ecosystems (Barnes, 2000). According to SABAP2, for the QDS 3326BA, 3326BC and 3326BD, 277 bird species have distributions which incorporate the project area. Species include:

- Blue Crane (*Anthropoides paradiseus*), which is a CRITICALLY ENDANGERED species according to NEMBA, as well as a listed species on APPENDIX II of CITES;
- Denham's Bustard (*Neotis denhami*) which is listed as PROTECTED on the NEMBA list; and
- Martial Eagle (*Polemaetus bellicosus*) which is listed as THREATENED.

Sixteen (16) bird SCC are likely to occur in the project area. Ten (10) of these species are considered to be of high importance with regard to Wind Energy Facilities (Table 5-6).

The proposed Albany WEF is **NOT** situated within 50 km of any of the South African Important Bird and Biodiversity Areas (IBAs).

Table 5-6: Bird species of conservation concern that are likely to occur in the project area which are considered to be of 'high importance' with regard to WEFs.

SCIENTIFIC NAME	COMMON NAME	RED LIST STATUS	CITES	NEMBA	PNCO
<i>Afrotis afra</i>	Korhaan, Southern Black	VU	-	-	Schedule II
<i>Anthropoides paradiseus</i>	Blue Crane	VU	Appendix II	Critically Endangered	Schedule II
<i>Ciconia nigra</i>	Stork, Black	VU	Appendix II	Vulnerable	Schedule II
<i>Circus maurus</i>	Black Harrier	VU	-	-	Schedule II
<i>Falco biarmicus</i>	Falcon, Lanner	VU	-	-	Schedule II
<i>Mycteria ibis</i>	Stork, Yellow-billed	EN	-	-	Schedule II
<i>Neotis denhami</i>	Denham's Bustard	NT	-	Protected	Schedule II
<i>Polemaetus bellicosus</i>	Martial Eagle	NT	-	Threatened	Schedule II

<i>Sagittarius serpentarius</i>	Secretary Bird	VU	Appendix II	-	Schedule II
<i>Stephanoaetus coronatus</i>	Crowned Eagle	NT	-	-	Schedule II

5.9 RIVERS, WATERCOURSES AND DRAINAGE LINES

5.9.1 NFEPA WETLANDS AND RIVERS

After several years of development and testing, a National Wetland Classification System (NWCS) was completed in 2013. The South African National Biodiversity Institute (SANBI), through its National Wetland Inventory project, initiated a collaborative process to develop a classification by which wetland habitat types with shared natural attributes can be grouped together. The classification system is intended to be used throughout the country for a number of different applications, with a view to provide wetland specialists, academics, government and other role players with a common language when distinguishing different types of wetlands for management and conservation purposes. The National Wetland Inventory maps are provided by SANBI through National Freshwater Ecosystem Priority Area (NFEPA) wetland maps, which classify the major wetlands and water bodies in the country at a coarse spatial scale. The classification was applied to the wetlands included in the inventory's National Wetland Map after extensive field testing throughout the country and through the National Freshwater Ecosystem Priority Areas (NFEPA) project. Please refer to Figure 5-7 for a map illustrating the NFEPA Wetlands and Rivers.

According to the NFEPA a number of wetlands were found to occur within 500 m of the project boundary. No rivers are found to occur within 32 m of the project area, but numerous drainage lines will be impacted by the proposed Albany WEF. Water Use Licences (WUL) will have to be obtained from DWA prior to the commencement of any construction activity within this area.

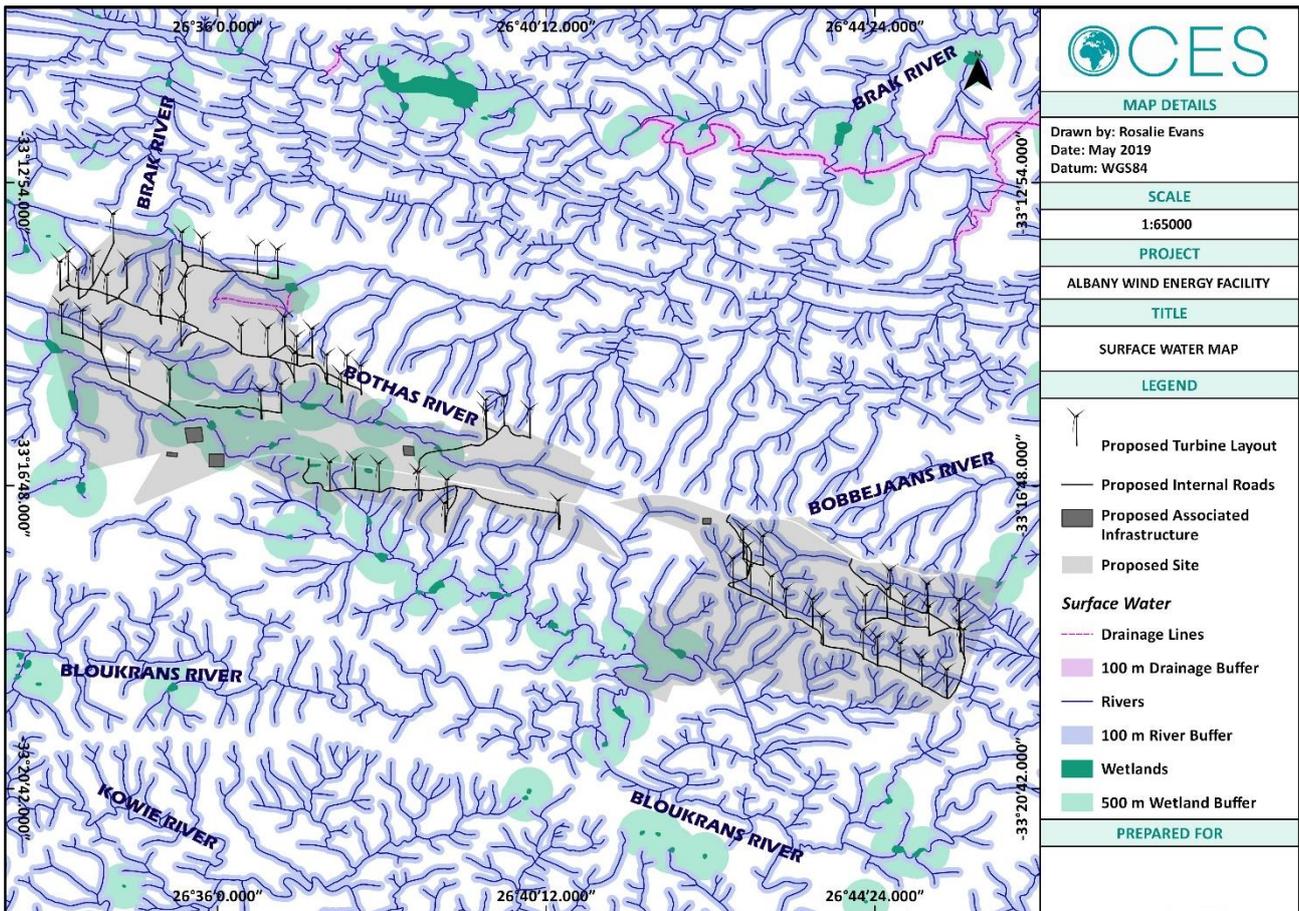


Figure 5-7: Surface Water Map of the Albany WEF site and surrounding areas.

The following wetland types are found within the project boundary (these wetlands will be assessed in the Ecological Specialist Report):

A) BENCH FLAT

A near-level wetland area (i.e. with little or no relief) with little or no gradient, situated on a plain or a bench in terms of landscape setting. The primary source of water is precipitation, with the exception of flats along the coast (usually in a plain setting) where the water table (i.e. groundwater) may rise to the surface or near to the surface in areas of little or no relief because of the location near to the base level of the land surface represented by the presence of the ocean. Dominant hydrodynamics are bidirectional vertical fluctuations, although there may be limited multidirectional horizontal water flow in some cases. Water exits in a flat through evaporation and infiltration.

B) BENCH DEPRESSION

A near-level wetland area (i.e. with little or no relief) with little or no gradient, situated on a plain or a bench in terms of landscape setting. A depression is a landform with closed elevation contours that increases in depth from the perimeter to the central area of the greatest depth, where water accumulates. Water sources are precipitation, ground water discharge, interflow and overland flow.

C) SLOPE SEEP

An inclined stretch of ground that is not part of a valley floor, typically located on the side of a mountain, hill or valley. A slope seep is a wetland area located on gently sloping land dominated by the gravity driven movement of material down-slope. Seeps are generally associated with strong, unidirectional flow of water horizontally. Water input is primarily groundwater or precipitation.

D) VALLEY FLOOR: CHANNELLED VALLEY-BOTTOM WETLAND

Small depressional areas within a channelled valley-bottom wetland can result in the temporary containment and storage of water within the wetland. Water generally exits in the form of diffuse surface flow and interflow, with the infiltration and evaporation of water from these wetlands also being potentially significant

Water bodies play an important ecological role which is associated with the vegetation that is found to occur in these areas, this vegetation plays a role in the improvement of the water quality and the trapping of sediment (Daily,1997). Bulrushes said to be generally beneficial species as they play a role in controlling erosion and filtering mudding floodwaters (Bromilow, 2010).

The maintenance of these water bodies is important as it provides suitable habitat for hydrophytic (water loving) vegetation and riparian vegetation found to occur in the wetland area.

FINAL

6 DESCRIPTION OF THE ENVIRONMENT: SOCIO-ECONOMIC

6.1 DESCRIPTION OF THE SOCIO-ECONOMIC PROCESS FOR RENEWABLE ENERGY PROJECTS

By May 2015 the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) had approved 79 wind, solar and hydro projects and tasked each of them to contribute towards local community development through socio-economic and enterprise development, local ownership and local job creation (Wlokas, 2015). Jobs and the inflow of funds to the local communities do not occur at once, as the process is staggered. During the bid development phase few project developers liaise with communities and cannot commit to promises in terms of local benefits, as the outcomes of the project proposals are uncertain. In the case of a preferred bidder, and during financial close, the companies could consult more with regards to recruitment of workers and trustees for the community trust. Construction follows with the employment of workers and some project companies could even start spending on limited socio-economic development (SED) and enterprise development (ED) projects at this early stage. Once operational, SED and ED spend will usually increase.

From a socio-economic perspective, the project will thus undergo the following processes:

6.1.1 IDENTIFICATION OF THE BENEFICIARY COMMUNITY

The first step for project developers is usually to identify local communities that will benefit from the renewable energy project. Requirements of the renewable energy independent power producer procurement (REIPPPP) programme oblige renewable energy companies to engage with the developmental opportunities and needs of communities around their project sites. The procurement documents define local communities as settlements in a 50km radius around the project site. It is usually the responsibility of the project developer to decide what constitutes the benefitting community. This could be specific villages or towns, or even the entire (qualifying) population within the 50km radius.

6.1.2 COMMUNITY TRUST

A community trust is a mechanism established for the community to hold ownership of projects, to have control of their future, to make decisions about their needs and to have some resources to implement their decisions. The aim of the Trust is to ensure that a portion of the incomes generated is directed towards local economic development of the affected communities. At this stage 2.5 to 5% equity should be held by communities, yet there are no explicit requirements on how these contributions should be spent. In round three of the bidding windows some projects have however structured 40% local ownership in their projects (Wlokas, 2015).

The way in which the projects are financed is such that the financing debts must be repaid before money is available for community spend. Communities do not have the capital to invest in renewable energy projects and the community trusts are financed through loans from financial institutions. In general, for each of the community trusts, the loan must be repaid before income flows to the community, although there could be a small dividend that flows to the community earlier on already.

6.1.3 EMPLOYMENT

The employment requirement ensures that a percentage of the South African workforce (12 to 20%) in the project should come from the local community. Figures obtained for BW 1 to 4 (17 IPPs) for the Eastern Cape province indicate that 53% of jobs were retained in local communities, compared with 51 and 45% in the Northern Cape and Western Cape provinces respectively (McDaid, 2016). In general the local employment component of the renewable energy projects fares much better than originally anticipated.

6.1.4 SOCIO-ECONOMIC DEVELOPMENT (SED) AND ENTERPRISE DEVELOPMENT (ED)

Project developers have to also make quantitative commitments for socio-economic development (SED) and enterprise development (ED). Between 0.7 and 1.5% of the total project revenue has to be allocated towards SED and up to 0.7% of the revenue can be chosen to fund ED measures. For some of the economic development criteria, the upper targets were lifted from round three onwards (Wlokas, 2015). The distinction between SED and ED spend is often not clear, which makes the implementation of economic enterprise development somewhat problematic (McDaid, 2016).

SED contributions are allocated towards activities that facilitate sustainable access to the economy for beneficiaries in the areas of rural development, the environment, infrastructure, enterprises, reconstruction of undeveloped areas, development programmes for women or youth, education, health care, arts and culture.

ED refers to contributions to black-owned businesses with the specific objective of assisting or accelerating the development, sustainability and ultimate financial and operational independence of that enterprise (McDaid, 2016). The ED aspect of the REIPPP programme appears slow in getting off the ground. Although there are some successes in small business development, most procurement spend are on equipment for the renewable projects and is happening in industrial zones rather than the areas where the projects are located (McDaid, 2016).

The monitoring process for such spending is carried out by government. Government relies on quarterly reports from companies on the amount of funds spent, but with little guidance on what and how to spend. Consultants, many drawn from the mining sector, have stepped in and facilitate such SED and ED processes.

6.2 STAKEHOLDERS FOR THE SOCIAL ASSESSMENT OF THE ALBANY WEF

Stakeholders within the primary and secondary spheres of influence are identified throughout the public participation and SIA processes. The sphere of influence is determined by the degree of impact that will potentially manifest. Geographic location of the stakeholder can aid the categorisation, but does not necessarily award a higher level of impact to a stakeholder that is located in closer proximity to the project. Stakeholders that have been identified thus far as relevant to the SIA include:

- PRIMARY SPHERE OF IMPACT
 - Land owners
 - Ward Councillors
 - Makana LM: Directorates: Local Economic Development & Planning; Public Safety & Community Services
- SECONDARY SPHERE OF IMPACT
 - Adjacent and surrounding landowners
 - Sarah Baartman DM (SBDM)
 - Road users on public and access roads
 - Fire and rescue services

- Legitimate land claimants, if any
- Agricultural unions
- **INDIRECT IMPACT SPHERES**
 - Labour unions
 - South African Police Service

6.3 BASELINE INFORMATION OF THE STUDY AREA

6.3.1 MAKANA LOCAL MUNICIPALITY

Makana LM is strategically located between East London and Port Elizabeth, two of the Eastern Cape's largest industrial centres, and is one of the nine Municipalities that form the Sarah Baartman DM (formerly Cacadu DM). The coastal cities of East London and Port Elizabeth are served by well-equipped container ports and have major airports linking them to Cape Town, Durban and Johannesburg (www.localgovernment.co.za).

In 2011 the Makana LM population figure was 80 390 with the largest concentration of people living in Makhanda. The LM covers an area of 4 375.62 km² and constitutes 7.5% of the SBDM.

Makhanda is famous as one of the leading cultural, educational and tourist centres and hosts the National Arts Festival in South Africa. It is the primary location of Rhodes University and other prominent and internationally acclaimed primary and high schools/colleges are found in Makhanda (Makana LM IDP Revision 5).

Makana LM continues to confront various challenges in terms of service delivery, administration and financial management, and many of these have recurred over long periods of time. Development priorities that emerged through the IDP public participation processes are:

- Infrastructure Development
- Capacity Building and Support to local municipalities
- Economic Development
- Community Services
- Institutional Development

6.3.2 DESCRIPTION OF THE STUDY AREA AND LAND USES

In 2011, Makana LM was delineated into fourteen Wards. The largest portion of the study area is located in Ward 13, a portion is in Ward 11 and it borders Wards 9 and 6 in Makhanda. The majority of the land uses in the study area pertain to agriculture, gaming and residential land uses. This will be expanded on in the Socio-economic Specialist Report and in the Agriculture & Social Impact Assessment Report.

6.4 KEY DEMOGRAPHIC INFORMATION

Where available the statistics and data of Makhanda are included and analysed, as it is expected that many of the socio-economic impacts will manifest here due to the town's proximity to the project.

6.4.1 POPULATION SIZE

Census 2011 determined the Sarah Baartman DM population to be 450 584. The DM houses 6.8% of the Eastern Cape Province's population; it is sparsely populated with eight people per square kilometre (Sarah Baartman DM IDP, 2015/16 Review). This results in high costs per capita of providing services in the District. Population concentrations are in Makana, Kouga and Ndlambe, with more than 50% of residents in the District residing in these Municipalities. One explanation for this distribution is the variation in land types, agricultural practices and associated income generating opportunities that are characteristic of Sarah Baartman's inland and coastal areas.

Geographically the Makana LM has a relatively large population living in a relatively small area with a population density of 18.4 per square kilometre. It has a population of 80 390 with 21 388 households, that accounts for 17.8% of the District's population (Makana LM IDP Revision 5; Census 2011). The 2016 population is estimated at 82 060 (www.localgovernment.co.za; StatsSA).

With a population of 50 220, Makhanda accounts for 62.5 % of the local Municipal population (StatsSA, Census 2011). This geographic area has 13 428 households with an average of 3.7 members in each household. However, the Makana LM IDP (Revision 5) indicates that a larger section of the local Municipal population, approximately 80%, is located in Makhanda. 10% are located in Alicedale, 5% in Riebeeck East and 4% in the rural areas. The population is highly urbanised.

6.4.2 POPULATION GROWTH

The Makana LM population increased from 74 529 in 2001 to 80 390 in 2011, indicating a 0.8% growth per annum and a 7.9% population growth over the 10-year period. The population has increased at a slower pace between 2011 and 2016 at 0.47% per annum (www.localgovernment.co.za).

The Sarah Baartman DM IDP (2015/16 Review) states that the Makana LM population growth can be attributed to the number of informal settlements as a result of general urbanisation and farm evictions. However, it is evident that an influx of people from other countries also takes place. The 2011 Makana LM population comprised of 90% South Africans, but the overall SA population decreased with 0.1% per annum. In contrast to this, there was a 7.6% growth per annum in the population that originates from the broader Africa, and a 69% increase per annum in the number of people from Asia (Makana LM IDP Revision 5; StatsSA). The Makana LM IDP further indicates that the larger Metropolis such as Buffalo City Metropolitan Municipality and Nelson Mandela Bay Metropolitan Municipality receive the larger bulk of migrants, due to the possibility of employment opportunities.

Even though the Makana LM population growth remains below the average national population growth of 35.7% from 2001 to 2011, the local population increase remains a concern as it has an impact on grant funding allocation, housing and service delivery.

6.4.3 AGE AND GENDER

The age and sex structure of the population is a key determinant of population change and dynamics. The shape of the age distribution is an indication of both current and future needs regarding educational provision for younger children, health care for the whole population and vulnerable groups such as the elderly and children, employment opportunities for those in the economic age groups, and provision of social security services such as pension and assistance to those in need.

The age and sex structure of smaller geographic areas are even more important to understand given the sensitivity of small areas to patterns of population dynamics such as migration and fertility. An increase in the young and the economically active population (EAP) of a LM would thus mean the potential increase in income earnings, however the growth would place pressure on educational resources and job opportunities as there is the possibility for smaller and slower growing economies to provide work to the increasing population.

The local Municipal sex ration is fairly even with 9 males for every 10 females (Makana LM IDP Revision 5).

Stats SA 2011 reflects that 27.2% of the Sarah Baartman DM and 24.4% of the Makana LM population is young and less than 15 years of age, which requires intergovernmental planning efforts to jointly focus on improved education and providing sport and recreation facilities. Sport in particular plays an important part in youth development and relevant role-players should form partnerships to promote sport initiatives and youth programs in Makana. The high number of children could also be an indication of a dependency on child support grants (Makana LM IDP Revision 5).

When the local statistics of Makhanda are compared with the age breakdown of the broader Municipality and District (Figure 6-1), it is evident that Makhanda has a slightly larger EAP group (aged between 15 and 65 years). This age group tends to settle in and near the urban centres where job opportunities are more easily accessible and pressure is thus placed on public and private business to generate job opportunities.

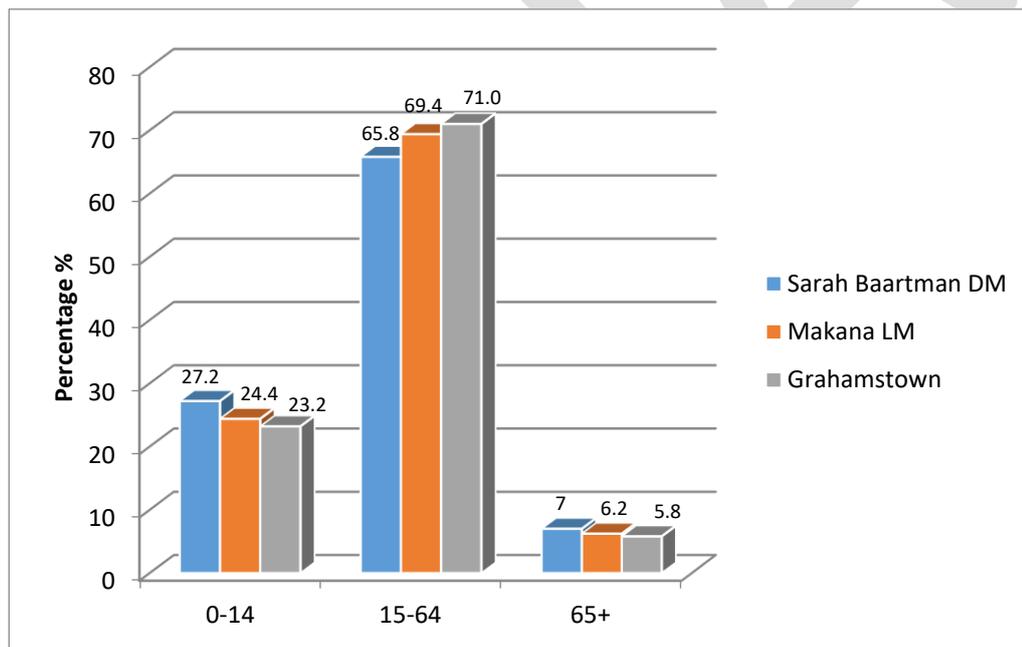


Figure 6-1: Age and Gender of DM, LM and Makhanda.

The 2016 district and local Municipal population age analysis has shown an increase in the young (0-15 years), and a decline in the EAP as well as the elderly (www.localgovernment.co.za). The importance of education, sport and recreation for youth development is continuously increasing. 2016 statistics for Makhanda could not be obtained.

Table 6-1: Local and District Municipality Age Analysis.

	0-15 YEARS	16-64 YEARS	65+
Sarah Baartman DM			
2011	27.2	65.8	7
2016	30.1	63.6	6.3
Makana LM			
2011	24.4	69.4	6.2
2016	26.8	67.6	5.6

6.4.4 RACE AND LANGUAGE

In Makana LM 78% of the population is Black African, followed by Coloured (12.1%) and White (8.7%). On a local level, the Makhanda population consists of 72.8% Black Africans, 14.3% Coloureds and 11.2% Whites (Census 2011). The most popular languages spoken in the Municipality are isiXhosa (66.5%), Afrikaans (13.8%) and then English (9.7%) (Makana LM IDP Revision 5).

6.5 ECONOMIC BACKGROUND

6.5.1 UNEMPLOYMENT RATE AND EMPLOYMENT STATUS

Employment status refers to whether a person is employed, unemployed or not economically active. The official unemployment rate thus gives the number of unemployed as a percentage of the labour force. The labour force in its turn is the part of the 15-64 year population that's ready to work and excludes persons not economically active (scholars, housewives, pensioners, disabled) and discouraged work-seekers. It is worth noting that, in South Africa, high unemployment coincides with low economic growth.

The Eastern Cape Province has a reasonably high official unemployment rate at 29.4% relative to the overall official unemployment rate for South Africa of 25.5%. It has increased from 28.7% in 2014 to 29.4% in 2015. Approximately 4 out of 5 people in the Province's economically active population are employed (IPP Quarterly Report, September 2016).

The official unemployment rate of Sarah Baartman DM is 24.9% (Census 2011), which is lower than the Province and much lower than the Local Municipal unemployment of 32.5%. StatsSA 2011 concludes that 5 705 of the youth (aged 15 to 34 years) in Makana LM are unemployed (Makana LM IDP Revision 5). Youth unemployment is higher than the overall unemployment in both the district and local Municipality, as depicted below.

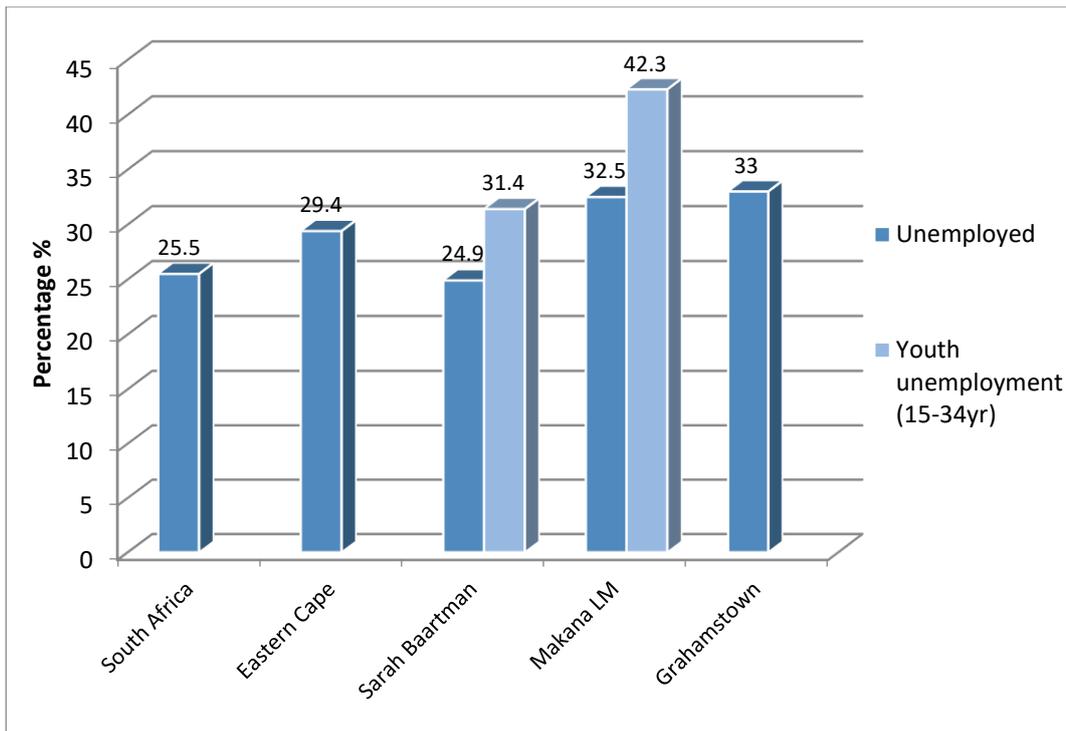


Figure 6-2: Youth Unemployment Percentage of RSA, EC, DM, LM and Makhanda.

In terms of gender, Sarah Baartman DM IDP reflects that in the district African male official unemployment is relatively low by rural South African standards (21%). African and Coloured females experience slightly higher unemployment at around 25%. The problem is less serious in the case of Coloured Males which is below 20%.

Interesting to note is that in Ward 13 (where a large section of the project site lies) 71.1% of the labour force is employed. This could perhaps be the result of employment opportunities available on farms in this Ward and that the unemployed population prefer to settle near the urban centres. The figure below compares employment in the affected Wards with local employment in the region.

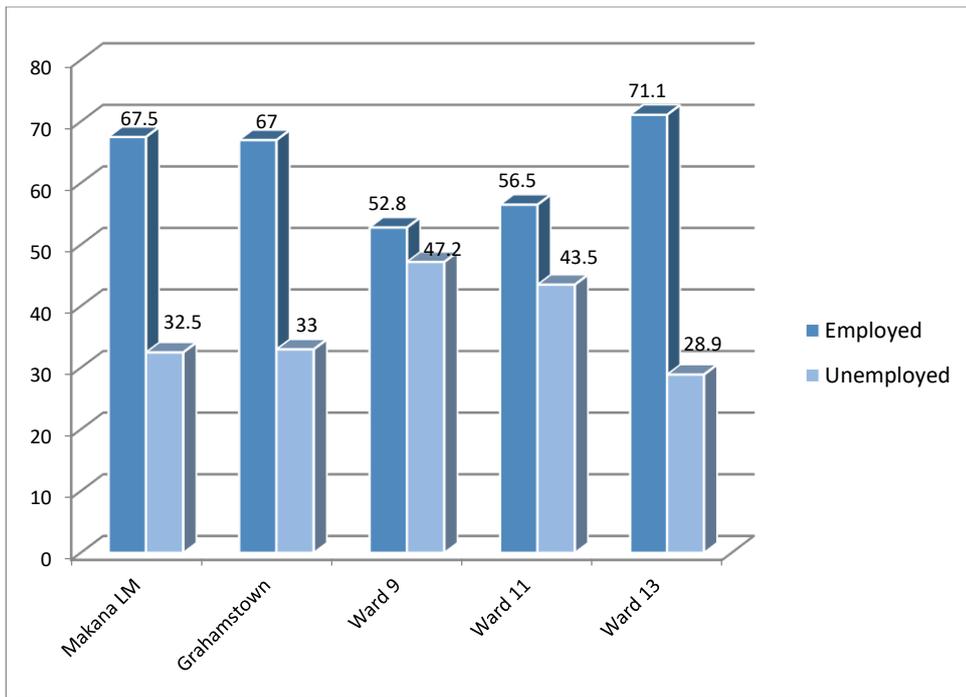


Figure 6-3: Employed vs Unemployed of Makana LM, Relevant Wards and Makhanda.

6.5.2 INCOMES

Annual household incomes for Makana LM and Makhanda are compared in the figure below.

Annual household incomes are generally higher in Makhanda when compared with the broader local Municipality. Of the 387 households in Makana that earn more than R614 001 annually, 303 reside in Makhanda (Census 2011).

According to the Makana LM IDP (StatsSA 2011) 45% of the local Municipal population (individual income) earn no income, and 10.5% earn less than R801 per month. The majority of the population earn between R801 – R1 600 per month (16.8%). Only 9.6% earn more than R6 401 p/m.

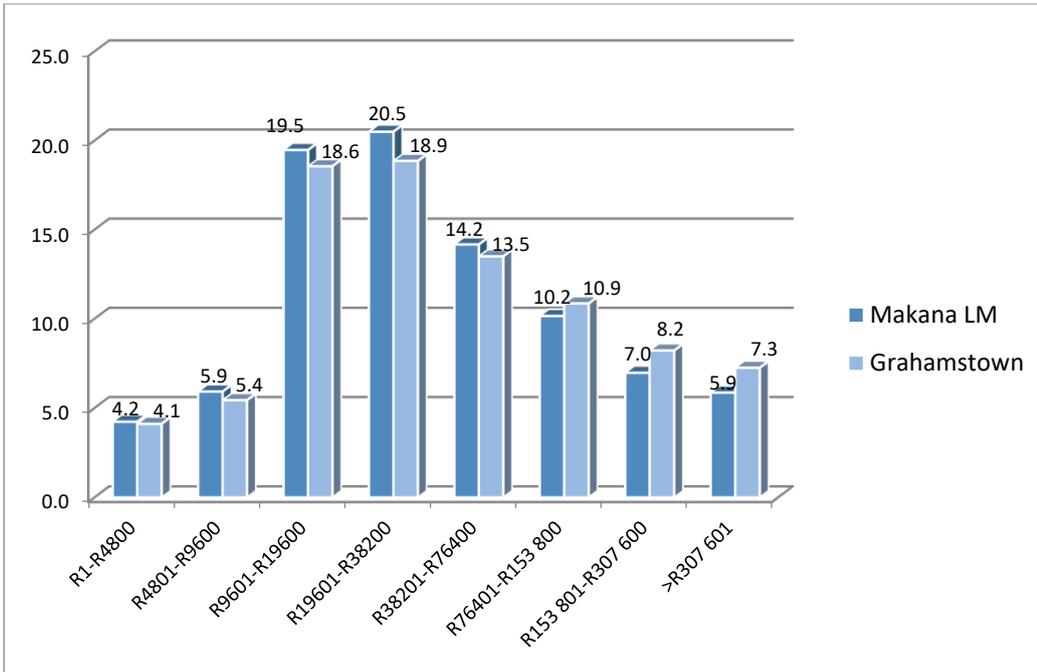


Figure 6-4: Income Level of Makana LM and Makhanda.

6.5.3 ECONOMIC SECTORS & EMPLOYMENT

During 2014 the largest employer in the Eastern Cape Province was the community and social services sector which accounts for 29.9% of the labour market in the Province. Thereafter, most employment opportunities were offered within the trade sector (16.6%), finance (12.0%) and manufacturing (11.6%). Electricity only accounted for 0.5% of total employment in the Province (IPP Quarterly Report, September 2016).

Sarah Baartman DM's major employers are community and social services (54%), trade (13%), which includes retail and tourism, followed by finance (12%) and manufacturing (8%). Electricity accounts for 1% of total employment in the District (Sarah Baartman DM IDP, 2015/16 Review).

Agriculture is a low employment contributor in the DM at 4%. This could partly be attributed to the land mass that is dominated by semi-desert Karoo landscape, which restricts agricultural production to extensive practices that uses low labour inputs relative to the land area being farmed.

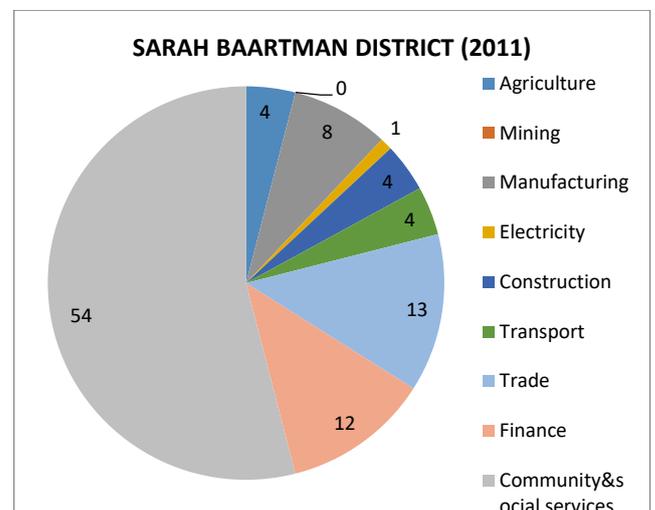
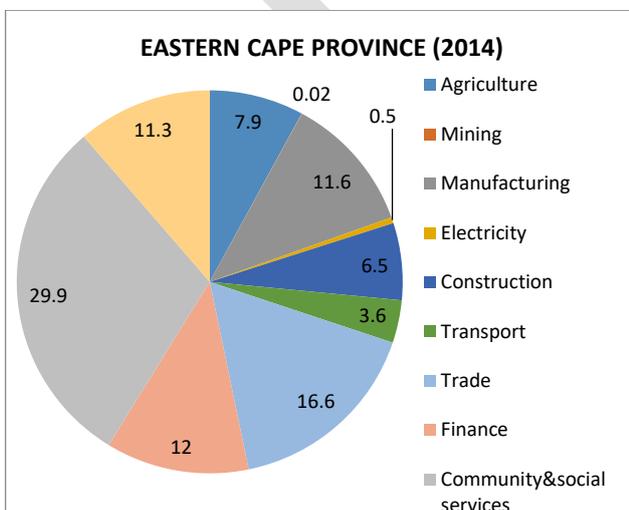


Figure 6-5: Employment Sectors of EC and DM.

While government services is the dominant sector in the Province’s economy, financial services, trade, automotive and component manufacturing, agro-processing and tourism also contribute significantly to total provincial output. The Province has a relatively diverse economy, but economic activity is largely concentrated around the urban metropolitan centres of Nelson Mandela Bay and Buffalo City. The Province is exploring opportunities for economic development in the remainder of the Province. Electrical power generation presents an excellent opportunity to enhance economic activities in rural areas (IPP Quarterly Report, September 2016).

At this stage, the electricity sector only contributes 3% to the Sarah Baartman DM economy. Community services (36%), trade (18%) (including tourism) and finance (17%) are the main economic contributors, whilst Government, trade, finance and business are the main economic sectors in Makana LM (Figure 11).

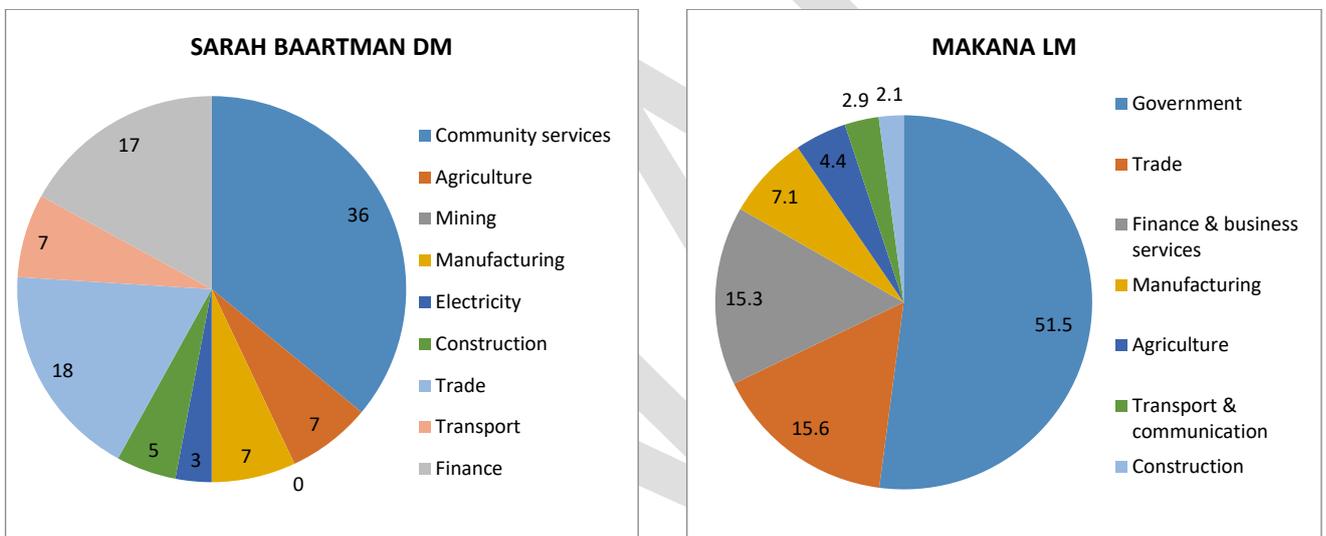


Figure 6-6: Economic Sectors of DM and LM.

6.5.4 ECONOMIC DEVELOPMENT

The Sarah Baartman DM and Makana LM have identified specific focus areas with economic development potential that could contribute significantly to economic growth and employment creation within the Municipalities. The most important sectors are discussed below. Some of these initiatives have already been executed, but the implementation and progress of Renewable Energy projects are especially noteworthy.

A) INDEPENDENT POWER PRODUCTION PROJECTS

The Eastern Cape has attracted almost a quarter of the Independent Power Producers Procurement Programme (IPPPP) projects in South Africa to date. The electrical energy that will become available from the investments in bid windows (BW) 1, 2, 3, 3.5, 4 and 5 will equate to more than 60% of the Eastern Cape’s own needs. Although production is only ramping up as IPPs become operational, 3 698 GWh have already been generated by the renewable energy portfolio in the Eastern Cape since inception to date, thereby offsetting 3.75 Million tons of CO₂ emissions. In this quarter alone, the projects generated 483 GWh (IPP Quarterly Report, September 2016).

Of the 17 renewable energy IPPs in the Eastern Cape Province, wind has the dominant share with 16 wind IPPs or 95% of total IPP capacity, with only one sizable solar PV project of 70 MW. The Province has attracted

43% of the total wind capacity procured in BW1 to BW4 and BW5 under the REIPPPP in South Africa, contributing 1 440 MW of the national total 3 366 MW wind power (IPP Quarterly Report, September 2016).

In addition to renewable energy power production and the offset of CO₂ emissions, far-reaching socio-economic advantages manifest. These include procurement, enterprise development, employment creation, local equity and socio-economic development for local communities. The total foreign equity and financing invested in REIPPs (BW1 - BW4 & BW5) in the Eastern Cape Province reached R9.2 billion. This is 17% of total investment attracted into South Africa by the REIPPPP.

The IPP Quarterly Report for Eastern Cape Province states that the committed procurement spent in the Province, during both construction and production, amounts to R 25.1 billion. Of this, R7.4 billion (29%) has already been spent. 41% of the total project value in the Eastern Cape has been allocated for local procurement, with the intent of stimulating the development of localised industries and the 'green' economy. 62% of the committed local spend have already been realised.

The commitments made towards local enterprise development in the Province for BW1 to BW4 and BW5 is R1.2 billion. This contribution will accrue over the operational life of the projects which has only started. As a result, only a small percentage has been realised at this early stage of the 20-year portfolio operational life.

Employment remains a top priority in the Eastern Cape. IPP investments within the Province alone have contributed to new employment opportunities for SA citizens estimated more than 18 000 job years over the construction and operational life of the plants. 42% of these new employment opportunities have been retained within local communities. The Reports indicate that local employment creation has surpassed expectations, achieving 116% of what was planned. Employment for South African citizens, including people from communities local to the IPP operations in the Eastern Cape were 4 806 job years as at end September 2016.

In addition to direct employment, the Strategy also recognised employment opportunities in manufacturing and supporting industries associated with the electrical energy industry and the development of new electricity generation capacity. The Province is therefore proactively promoting renewable energy manufacturing and technology development opportunities and positioning the Coega industrial development zone (IDZ) as the 'green' technology hub in South Africa in this regard.

Socio-economic development (SED) and economic development (ED) expenditure under the IPPPPP are focused on education and skills development, social welfare, healthcare, general administration, and enterprise development. The IPP projects procured in the Eastern Cape will make a combined socio-economic commitment of R4.5 billion over the 20-year project life. Of this SED contribution, R3.9 billion has been committed to local communities located within the vicinity of the IPP projects in the Eastern Cape. SED distribution takes place as follows (IPP Quarterly Report, September 2016):

Table 6-2: Socio-Economic Development Distribution.

EDUCATION AND SKILLS	SOCIAL AND WELFARE	HEALTH CARE	GENERAL ADMINISTRATION	ENTERPRISE DEVELOPMENT
44%	20%	5%	12%	19%

The figure below demonstrates that contributions of the eleven executed Wind Energy Projects towards Local Municipalities and communities in the Sarah Baartman DM have been significant. In addition to SED, Black

South Africans in Eastern Cape hold 38% of the shares across the complete supply chain (for the 13 projects in BW1, BW2 and BW3). Local communities hold 17% equity in the IPPs of BW1, BW2 and BW3.

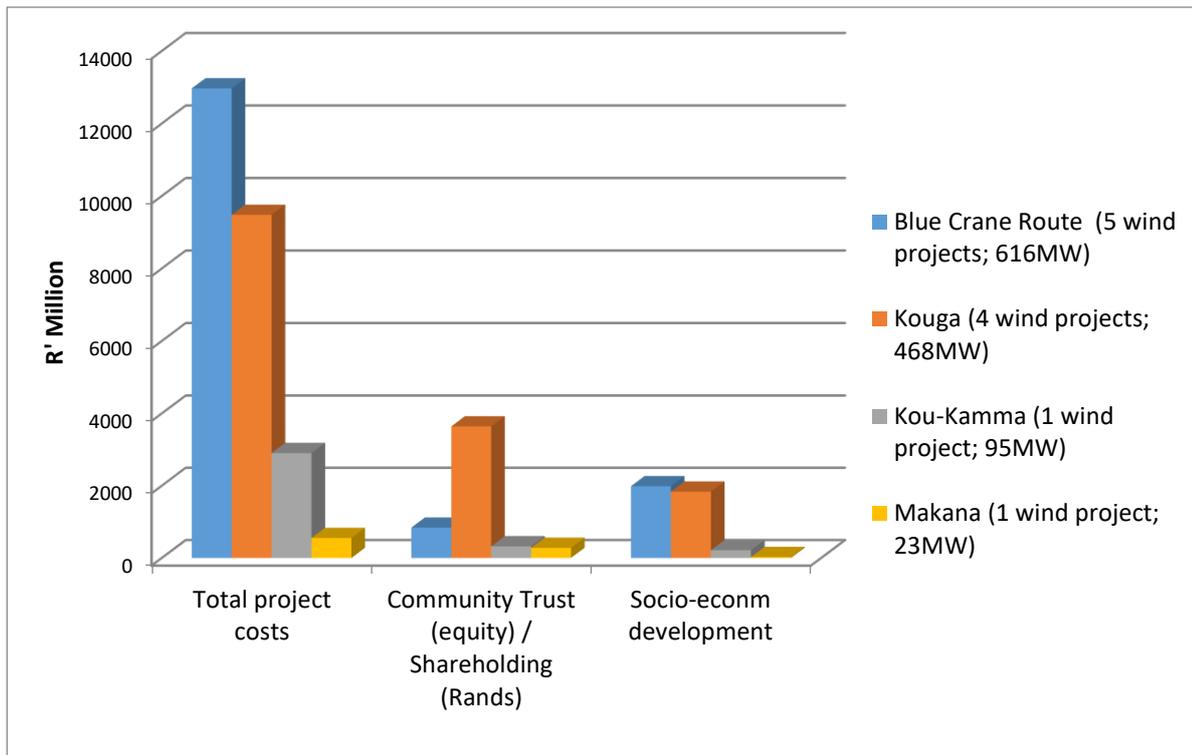


Figure 6-7: IPP Project Finances comparison.

Some constraints have been identified. The accessibility of the interior is problematic and may impede the development of new power infrastructure under the IPPPPP in rural areas. Transportation and regional development growth corridors have been identified, as well as plans to strengthen the transmission grid, but prioritised delivery on these plans will be critical to fully capture the opportunities offered by the REIPPPP.

Besides its infamous wind potential, the Province has also identified potential for bio-fuel production and electrical power generation from small hydro, solar, biomass and possibly tidal or wave energy. However, large scale biomass production is dependent on agricultural infrastructure, sustainability and possible environmental impact. The Hydro power generation capacity / potential exists in the Blue Crane Route region along the Fish River (Sarah Baartman DM IDP, 2015/16 Review).

B) TOURISM

Tourism is well established in the DM and contributes R680 million to the Gross Geographic Product (GDP) of the District. Tourism attractions include the well-known Tsitsikamma National Park, the Baviaanskloof Mega-Reserve (a World Heritage Site) and the Addo Elephant National Park and the coastal resorts of Jeffrey's Bay and Port Alfred. Farm tourism is beginning to develop in the Karoo, and Graaff-Reinet is commonly visited for its history and architecture.

Tourism spend in the District has shown rapid growth and has reached a plateau at about R3 Billion per annum. After a sharp decline, international tourism is rising again with domestic tourism remaining buoyant (Sarah Baartman DM IDP, 2015/16 Review).

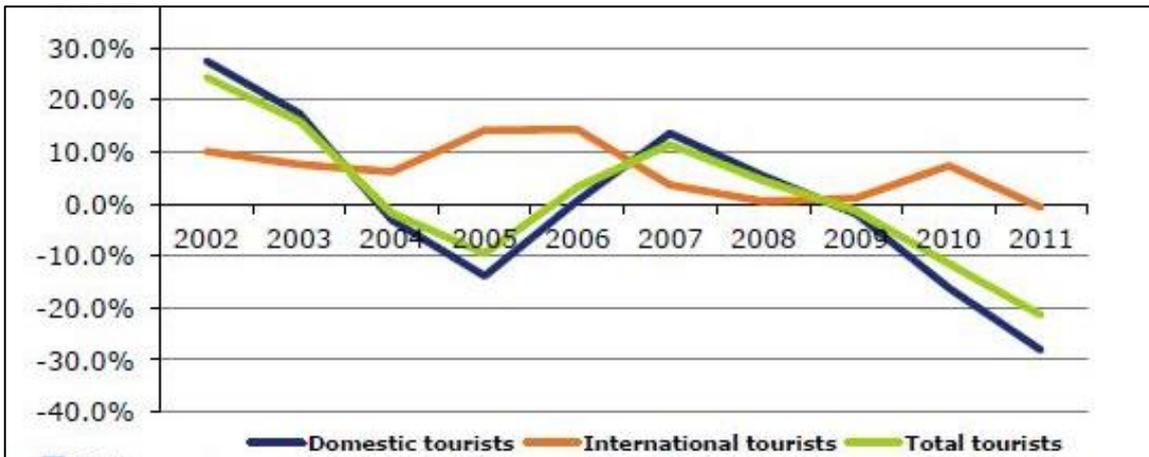


Figure 6-8: Tourism GDP in the DM.

Bed nights sold to foreign tourists are staying relatively constant at about 500 000 per annum whilst bed nights sold to domestic tourists are heading towards the 3.5 million mark. This economic sector has massive potential for growth.

According to the Sarah Baartman DM Tourism Master Plan, it can be calculated that tourism contributes as follows to the local economy:

- Supports 1 936 jobs in the tourism industry;
- Supports a total of 4 413 jobs within the tourism economy;
- Supports the equivalent of 294 SMMEs in the tourism economy.

On a more local level, the heritage resources of the Makana LM is significant and needs to be conserved in terms of the provisions of the National Heritage Resources Act (Act 25 of 1999 - NHRA) as it contributes to the local economy and has potential for growth. Heritage resources comprise not only worthy buildings and urban precincts, but also include physical and cultural landscapes. In addition to this, the Makana area has nearly a million hectares devoted to game. A range of public and private nature reserves span the area, from the world-famous Shamwari in the west to the magnificent Double Drift and Kwandwe Reserves in the east (Makana LM IDP Revision 5).

Makhanda is the hub of the Makana LM and has more than 70 declared National Heritage Sites. One of these is the highest church spire in the country. Makhanda was founded in 1812 and is entrenched in historical events, from the 1820 Settlers to a 100-year-old University. It also hosts some of the oldest schools (www.localgovernment.co.za). Each year, Makhanda comes alive with activity when the National Arts Festival comes to town. Visitors get the chance to see performances from national artists, experience the local markets, and get a taste of culture and indigenous cuisines (www.localgovernment.co.za).

C) AGRICULTURE

Agriculture contributes approximately R690 million to the Gross Geographic Product (GPP) of the District (Sarah Baartmand DM IDP, 2015/16 Review). Cattle and dairy farming are dominant in the areas around Makhanda, Cookhouse, Alexandria and Humansdorp. However, in other areas stock production has seen a decline in the past decade, primarily as a result of game farm establishment and the expansion of the Addo National Elephant Park. Game reserves are now a major industry within the district, which contributes to the tourism sector.

Linked to agriculture is agro-processing and manufacturing, which is currently still a relatively small sector limited to food and dairy. Many of the agro-processing opportunities are also coupled with the expansion of agricultural production to supply raw materials to the identified potential/new agro-processing facilities. Furniture production is present in the larger towns of Makhanda and Humansdorp. Small businesses and craft co-operatives in district towns focus on specialty products ranging from hand knitted mohair items to essential oils. Other existing and new opportunities include the mohair industry, vegetable processing, essential oils and culinary production, apiculture (beekeeping), exotic fruits, pork industry, citrus, deciduous fruits, chicory and so forth (Sarah Baartman DM IDP, 2015/15 Review).

D) SMME Development

SMMEs are the engine for growth in Sarah Baartman DM. The majority of people in the District live in the rural areas and most depend on agriculture and other rural economic activities. Most communities produce on a subsistence level and have limited access to financial markets that cannot effectively supply the financial resources and other products needed by the emerging SMME sector.

In order to contribute to economic development in the District, SMMEs require support to create an enabling environment where engagement with financial institutions can take place. In spite of the significant contributions that they make towards GDP, employment and rural livelihoods, SMMEs continue to face a plethora of challenges that inhibit their growth and development beyond mere survivalist modes of activity. The importance of SMMEs cannot be overlooked and a multi-pronged approach is thus needed to deal with impediments such as lack of financial tools, weak entrepreneurial capacity and the absence of strong linkages with existing large entrepreneurs (Sarah Baartman DM IDP, 2016/17 Review).

E) LOCAL ECONOMIC DEVELOPMENT

Sarah Baartman DM has entered into an agreement with the Development Bank of SA Development Fund to be a pilot on a Local Economic Development Initiative (LEDI). The LEDI funds large capital catalytic economic infrastructure projects, as well as developing and implementing regional economic turnaround strategies.

- LEDI projects include:
 - Fibre Innovation Hub Rapid Assessment & Strategic Plan
 - Natural Fibre Cluster Interim Support
 - Natural Fibre Cluster Championship
 - Development of an Agri-tourism Route in Sundays River Valley Municipality
 - Investigation into and identification of niche agro-processing opportunities
 - Camdeboo Satellite Aquaculture Project
 - Implementation Study on the Generation of Hydro-electricity on micro/mini sites located within Blue Crane Route Municipality
 - Renewable Energy Rapid Assessment & Audit
 - Regional Renewable Energy Coordinating Forum
 - Land Use and Locational Policy for Renewable Energy
 - Revision of Economic Growth and Development Strategy
 - Preparation and Implementation of a Regional Economic Model
 - Strategic Infrastructure Investment Assessment for Kouga Municipality
- On a local level, the programs for the Makana LED strategy are:
 - Strategic Partnerships
 - Infrastructure Provision and Services
 - Investment Attraction
 - SMME Promotion
 - Tourism Development

- Leveraging of educational capital
- Agricultural sectoral development

6.6 SOCIAL STATUS

6.6.1 EDUCATION

Persons with no schooling are defined as people who never received any form of formal education. This implies illiteracy in most cases and would limit the person to perform manual labour. The importance of education is emphasized, as the education levels of a population is directly linked with that population’s level of employability.

There have been positive improvements on district and local level, with the decrease in the percentage of the population that has not received schooling. A high level of dropouts, especially at primary education level, remains.

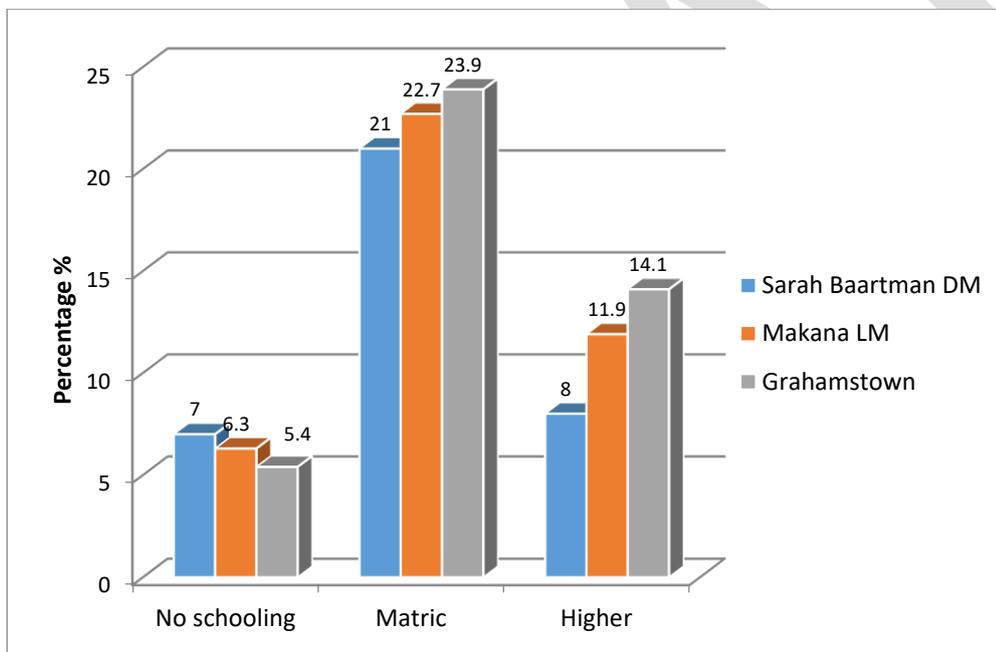


Figure 6-9: Education Levels in the DM, LM and Makhanda.

Census 2011 statistics show that 6.3% of the Makana population over 20 years of age had not received any schooling in 2011 (www.localgovernment.co.za). The figure is moderate and furthermore shows a decline of -3.3% p.a. since 2001 when 11.8% of the population over 20 years had not undergone any schooling. Recent statistics for 2016 (www.localgovernment.co.za; StatsSA) indicate that the level of no schooling has declined even further to 3.6% (Figure 6-10).

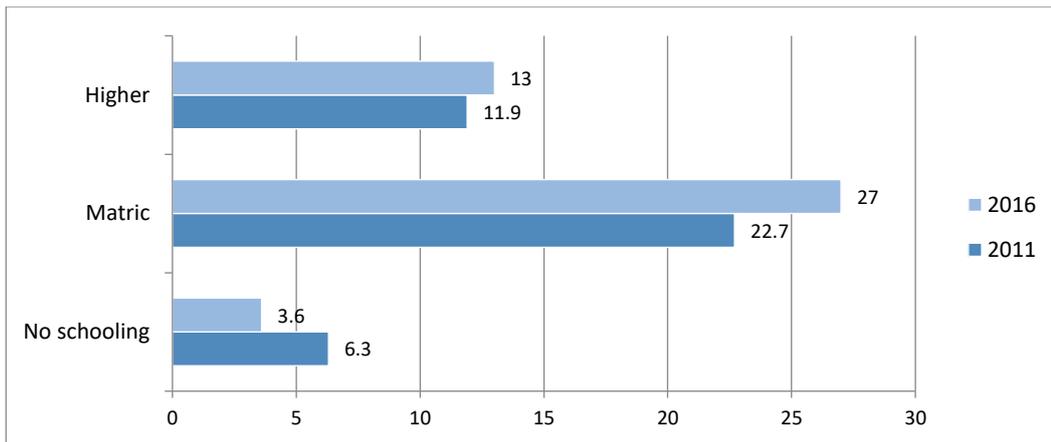


Figure 6-10: Education Levels in the DM, LM and Makhanda 2011 vs 2016.

Furthermore, the number of people completing secondary school and receiving a tertiary education has increased. These trends from 2001 to 2016 support the notion that educational prospects have improved. Prestigious primary and secondary schools and the seat of the Rhodes University are situated in Makhanda, making this an academia hub (Makana LM IDP Revision 5). In 2011, 14.1% of the Makhanda population older than 20 years had some form of tertiary education and it is likely that this number has since increased.

6.6.2 DEPENDENCY, INEQUALITY AND POVERTY LEVELS

Poverty is defined not only by levels of unemployment, but also characterized by a lack of access to education, health care, and basic services including water and sanitation.

In the Sarah Baartman DM, Africans experience high poverty (although lower than the national average), a low HDI, high illiteracy compared to the country as a whole, and high inequality, although lower than the country as a whole. Coloureds experience lower poverty and illiteracy than Africans but are significantly worse off than the national average. They also experience a higher HDI and roughly the same level of inequality. Whites experience almost no poverty, a high HDI, less than 5% illiteracy and relatively low inequality in keeping with South African norms for this population group (Sarah Baartman DM IDP, 2015/16 Review).

Poverty levels in Makana LM are high (30.5% in 2012) with 45% of the population earning no income, and a further 10.5% earning less than R801 per month, therefore falling under the poverty line (Makana LM IDP Revision 5). This is exacerbated by the fact that almost 33% of the labour force (excluding discouraged work-seekers) are not working. Discouraged work-seekers make up 10% of the population older than 20 years.

The three (3) LM's that are the most densely populated, i.e. Kouga, Makana and Ndlambe, experience the lowest poverty levels when compared with other Municipalities in the District (Figure 6-11). As mentioned previously in the report, population concentrations in the District correlate with areas where employment opportunities and income generating opportunities are available, and as such lower poverty levels are evident.

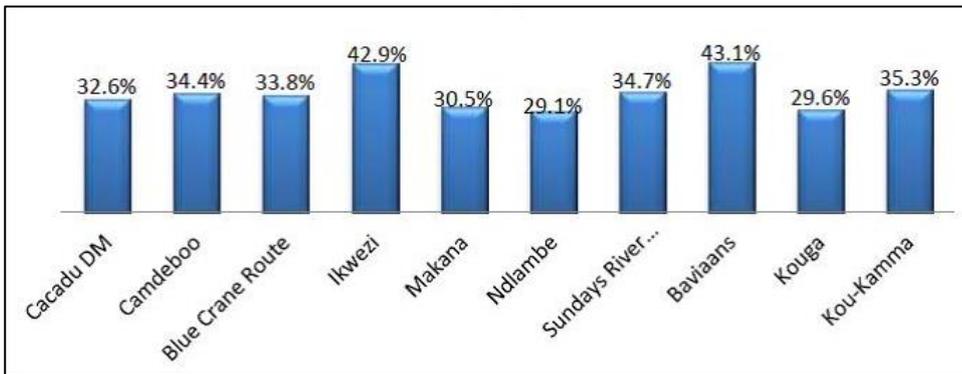


Figure 6-11: Poverty Levels of LM's within the Sarah Baartman DM.

Very serious poverty (where people live on less than R14 – R18 per day) is rapidly declining, probably in response to the roll out of social grants in South Africa (Sarah Baartman DM IDP, 2015/16 Review).

Female headed households, which could be the result of male migration, death, unwed pregnancies and so forth, increased from 44.5% to 45.3% between 2011 and 2016 (www.localgovernment.co.za; StatsSA) and the overall dependency ratio is 5 persons per ten population of working age (Makana LM IDP Revision 5). The majority of individuals who receive benefits from the various welfare programs are women. This cycle of dependency is a result of the funnel of failure that women have a tendency to fall victim to. Women are left uneducated and living in poverty. Despite their desire to improve their current situation they are unable to with the opportunities available. Furthermore, the broader population lacks buying power which makes it difficult to exploit local economic development opportunities.

Due to the above factors, a significant portion of the population is dependent on social grants. The predominant type of grant is for child support followed by old age and permanent disability. There has been a gradual increase in social grant expenditure in the Sarah Baartman DM increasing to R 59 736 423 in the 2009 financial year from R 59 068 286 in the 2007 financial year (Sarah Baartman DM IDP, 2015/16 Review). Assuming that no individual qualifies for more than one grant then 45.5% of the total Makana LM population is receiving a social grant (Makana LM IDP Revision 5).

6.6.3 HEALTH & HIV / AIDS

The Provincial Strategic Plan (PSP) for HIV, TB & STIs 2012-2016 is a comprehensive strategy for the Eastern Cape Province in response to HIV, TB and STIs. The long-term vision is to have a Province that is free of new HIV & TB infections; zero deaths as a result of these epidemics and zero discrimination of people living with HIV & TB (Eastern Cape Aids Council, March 2016). To accomplish this, social, economic and structural drivers leading to HIV infections need to be addressed, and not only the treatment of the disease.

Nationally, HIV infection has reduced gradually among the sexual reproductive age group (15-49 years). According to mid-year estimates from Statistics South Africa, the incidence rate is 1.22% for the July 2014 - June 2015 period which is a slight reduction from 1.23% of the previous year (Eastern Cape Aids Council, March 2016). Despite not being able to meet the 50% reduction target for the Eastern Cape, HIV incidence among 15-49-year-old individuals has been declining from 1.5% (FY 2013/14) to 1.23% (FY 2014/15). However, the Province successfully surpassed the 2% target in the mother to child transmission by registering a 1.7% new infection rate at six weeks in 2014/15.

Table 6-3: HIV Statistics.

	HIV INCIDENCE (15-49 YRS)	HIV PREVALENCE (15-49 YRS)	HIV PREVALENCE AMONG YOUTH (15-24 YRS)	TB INCIDENCE	TB MORTALITY RATE	PATIENTS ALIVE AND ON TREATMENT
Eastern Cape	1.23%	19.9%	6.2%	792.3 cases per 100 000	9.3%	320 062

Recent statistics for the Sarah Baartman DM could not be obtained. However, the IDP indicates that the HIV & Aids prevalence in the District in 2010 was 20.7%. Of the people that were tested for HIV & Aids in Makana, 9.1% tested positive.

For the period 2014/15 there was a slight decline in the HIV incidence rate among females and a slight increase in males, of the sexually reproductive age group (15–49 yrs) in the Province. Incidence among females was 1.68% and 1.12% for males. The results indicate that females are still more susceptible to new HIV infections when compared to males. Of concern also was the increase in male HIV infection rates at a time when infection is expected to be reducing (Eastern Cape Aids Council, March 2016).

HIV prevalence estimates for the Eastern Cape Province increased which implies the success of the ART programme in prolonging lives. According to the Eastern Cape PSP Midterm Review, approximately 755 610 individuals were living with HIV in the Province (Eastern Cape Aids Council, March 2016).

Currently in Sarah Baartman DM, accredited ART sites are as follows (Sarah Baartman DM IDP, 2015/16 Review):

- 47 clinics,
- 9 hospitals
- TB hospitals and
- 1 Psychiatric Hospital
- 7 Mobile Clinics

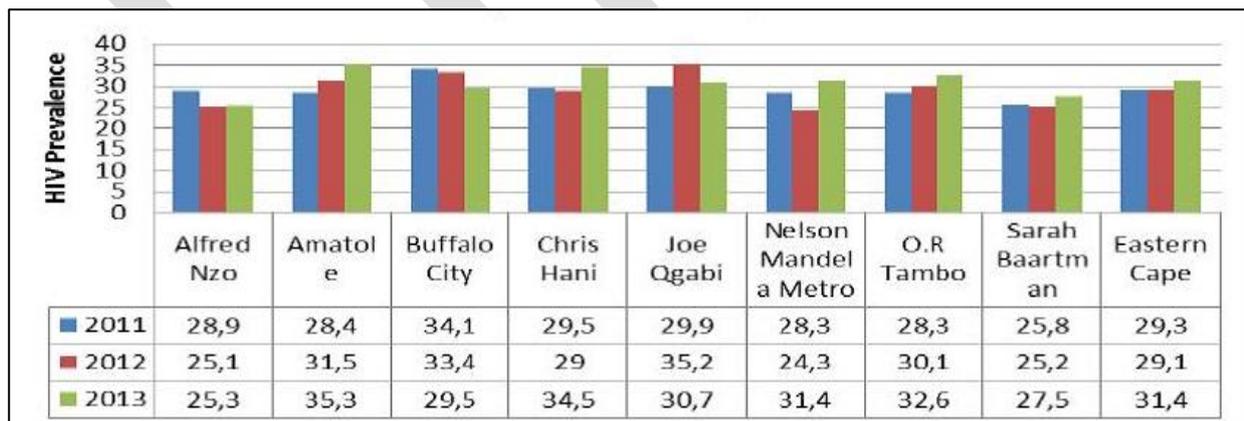


Figure 6-12: HIV Prevalence in the EC DM's.

The figure above shows prevalence trends by district among women attending antenatal clinics aged 15-49 in the Province. Six districts, including Sarah Baartman DM, registered an increase in HIV prevalence between 2012 and 2013.

During the period 2014/15, the Province was not on track on achieving 50% reduction in STIs other than HIV. There was an increasing trend in the number of new STI cases reported in the Eastern Cape. According to the District Health Information System (DHIS), the incidence rate of new STI episodes was reported at 46.87 per 1 000 individuals in 2015, showing an increase from 45 cases per 1 000 individuals in 2014 (Eastern Cape Aids Council, March 2016).

TB remains a challenge in the Eastern Cape and nationally, with South Africa having the third highest number of new infections of all types of TB and being the second highest in Drug Resistant TB (DR-TB) in the world. The incidence rate in the Province declined to 792.3 cases per 100 000 individuals in 2014-15 from 862.7/100 000 and 823.1/100 000 in 2012-2013 and 2013-2014 respectively. A closer look at district segregation indicates that Eastern Cape districts are a hotspot for TB in the country. Sarah Baartman had the highest TB incidence of 1 127 cases per 100 000 in the country during the period under review (Eastern Cape Aids Council, March 2016).

6.6.4 CRIME

SAPS statistics indicate low levels of crimes in the District compared with the overall Eastern Cape Provincial crime statistics. The urban police districts of Makhanda, Graaff-Reinet and Humansdorp are however areas of concern and in 2013 crime were more prevalent in the Makana area, and particularly in the Makhanda district (Sarah Baartman DM IDP, 2015/16 Review). Contact or violent crimes, such as murder, attempted murder, sexual offences and robberies particularly posed a more serious threat.

The table below reflects SAPS crime statistics and indicates that there has been a considerable decrease in criminal activities reported at the Makhanda police station. Apart from high jacking, all other crime categories reported declines in the period April 2013 to March 2016 (www.saps.gov.za).

CRIME CATEGORY	April 2013 to March 2014	April 2014 to March 2015	April 2015 to March 2016
CONTACT CRIMES (CRIMES AGAINST THE PERSON)			
Murder	28	11	16
Sexual Offences	188	73	85
Attempted murder	30	12	16
Assault with the intent to inflict grievous bodily harm	653	299	248
Common assault	511	338	329
Common robbery	110	113	101
Robbery with aggravating circumstances	287	144	167
Contact Crimes (Crimes Against The Person)	1807	990	962
CONTACT-RELATED CRIMES			
Arson	22	4	7
Malicious damage to property	327	220	188
Contact-Related Crimes	349	224	195
PROPERTY-RELATED CRIMES			
Burglary at non-residential premises	122	56	51
Burglary at residential premises	692	475	515
Theft of motor vehicle and motorcycle	59	51	37
Theft out of or from motor vehicle	376	346	272
Stock-theft	39	31	35
Property-Related Crimes	1288	959	910
OTHER SERIOUS CRIMES			
All theft not mentioned elsewhere	774	650	571
Commercial crime	137	110	128
Shoplifting	180	182	124
Other Serious Crimes	1091	942	823
17 Community-Reported Serious Crimes	4,535	3,115	2,890
CRIME DETECTED AS A RESULT OF POLICE ACTION			
Illegal possession of firearms and ammunition	15	3	8
Drug-related crime	112	65	70
Driving under the influence of alcohol or drugs	133	58	50
Sexual offences as result of police action	0	0	1
Crime Detected As A Result Of Police Action	260	126	128
SUBCATEGORIES OF AGGRAVATED ROBBERY			
Carjacking	5	1	3
Truck hijacking	1	0	3
Robbery of cash in transit	0	0	0
Bank robbery	0	0	0
Robbery at residential premises	33	22	32
Robbery at non-residential premises	32	14	25
Subcategories Of Aggravated Robbery	71	37	63

6.7 HOUSING, INFRASTRUCTURE AND SERVICES

6.7.1 HOUSING

The number of formal dwellings in Makana increased from 85.4% to 90.7% from 2011 to 2016. 56.1% housing is owned (www.localgovernment.co.za; StatsSA). In contrast to many other municipalities in South Africa, there has also been a reduction in the number of informal dwellings from 2001 to 2011 (1568 to 1432 informal dwellings) as well as backyard shacks. Informal dwellings are concentrated in Makhanda and Alicedale (Makana LM IDP Revision 5). The demand for urban housing development remains.

The total estimated housing demand resulting from population growth (based on the current growth rate) is 4 430 additional households by 2030. This demand equates to a land requirement of approximately 220 ha across the entire Municipality. Most of this demand would be accommodated in Makhanda. Based on the Census 2011 figure the housing demand associated with the eradication of informal dwellings would be 723 households and backyard shacks 1 432 households. The associated land demand is 36 ha and 72 ha respectively (Makana LM IDP Revision 5). The settlement planning priority is therefore to provide adequate shelter to those households accommodated in informal settlements and in backyard shacks.

There is however not consensus among the various sources and it would seem that duplication occurred in the backlog figures. The September 2011 housing waiting list had an inflated figure of 16 852 (Makana LM IDP Revision 5).

Major issues pertaining to housing and settlement aspects within the District include (Sarah Baartman DM IDP, 2015/16 Review):

- The non-availability of the land to address current housing demand, available land is owned by private owners which are intensively used mainly for agriculture, SAN Parks and state land;
- The continued influx of migrants to the area in search of employment opportunities, some short-term in the fishing and tourism industry and by farm workers after the fruit harvesting season;
- The isolated settlements and nodes classified as Rural Nodes that are located away from existing community services, often contain low population thresholds that cannot support the essential Community Facilities and are difficult and expensive to provide with bulk and internal services to a level equivalent to settlements in the bigger Urban Areas; and
- There has been a rapid increase of informal settlements in and around small towns within the District due to the changing pattern of labour utilisation on farms.

6.7.2 SERVICES

A) Bulk services

Bulk services in the District are under pressure due to overloading and the lack of on-going maintenance (Sarah Baartman DM IDP, 2015/16 Review). The Makana Local Municipality is both the 'Water Service Authority' and 'Water Service Provider' and is also responsible to provide all the other local government services such as municipal roads, storm water management, electricity, waste collection and disposal.

For Makhanda, Makana LM's major water schemes, raw water is purchased from the Department of Water & Sanitation through the Glen Millville dam on the eastern scheme, and on the western scheme raw water is sourced from Settlers and Howieson's Poort Dams (Makana LM IDP Revision 5).

The Municipality is also the Service Provider for electricity and distributes in the old Grahamstown Municipal area. The newer urban settlements (i.e. Grahamstown East), Riebeeck East, Alicedale and the rural farm areas are serviced by Eskom. Budgetary constraints hinder the effective operation and maintenance as the infrastructure is aging and needs upgrading (Makana LM IDP Revision 5).

B) HOUSEHOLD SERVICES

Increase in service delivery and the development/upgrading of bulk infrastructure should have a positive impact on economic growth thereby increasing possibilities to attract new business opportunities. The dispersed nature of the settlements in the Sarah Baartman DM however is counterproductive for service delivery. These conditions are worse in the small towns of the interior where poverty can be severe, compounded by isolation from the mainstream economy (Sarah Baartman DM IDP, 2015/16 Review).

Coastal areas are characterized by higher population densities primarily due to the prevalence of intensive agricultural practices, which are encouraged by the higher coastal rainfall, fertile soils and the increased tourism potential of seaside-towns. These areas portray an urban bias which serve to attract residents from the lesser populated 'rural' areas in the search of economic opportunities and improved access to services.

In the Sarah Baartman DM area, Makhanda is an exception to this rule. This inland town is regarded as an economic hub due to the intensive stock farming enterprises in the area and the associated economic spin-offs in terms of employment. The town further supports a large student base and academic staff and all these factors create demand for more elaborate social and economic infrastructure (Sarah Baartman DM IDP, 2015/16 Review).

The Sarah Baartman DM IDP (2015/16) reports that Municipalities in its District have achieved significant improvements in both the standard and provision of water and sanitation. The number of households with water on site is almost double the Eastern Cape Provincial average. Only 22% houses in the District are informal and two-thirds of households have potable water and a flush toilet or pit latrine on site.

In Makana LM, the level of improvement of flush toilets showed a positive growth of 16.3% p.a. over a period of 10 years (2001 to 2011). The number of bucket toilets reflects a decline or negative growth of minus 8.6% p.a. over the same period, which in effect means that bucket toilets have been reduced from 30.4% in 2001 to 3.6% in 2011 (Makana LM IDP Revision 5). However, in 2011, 970 households in Makhanda (7%) still had no toilet or were still using the bucket system (Census 2011; StatsSA).

Provision of electricity has improved from 73% in 2001 to almost 90% in 2011 and 96.6% in 2016. The dependency on paraffin has been reduced from 24% in 2001 to 7.4% in 2011. The most recent Sarah Baartman IDP reports a 2 378 household backlog for electrification in Makana LM.

In 2016, 90% of households had access to a weekly refuse removal service as opposed to 89% in 2011 and 86.4% in 2001 (Makana LM IDP Revision 5). Improvement in services are summarised below.

Table 6-4: Service Improvements between 2011 and 2016.

SERVICE	YEAR	
Household services	2011	2016
Flush toilet connected to sewerage	71.9	83.8
Weekly refuse removal	88.9	90.1
Piped water inside dwelling	49.8	45.1
Electricity for lighting	89.5	96.6

6.7.3 LANDFILL SITES

The Makana LM has three landfill sites namely the Makhanda, Alicedale and Riebeeck East landfill. All the sites are managed by the Municipality. The Makhanda landfill site is located 2km from town and was permitted by the Department of Water Affairs and Forestry on 10 September 1996 as a Class G:M:B+ waste disposal site in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989).

The expected lifetime of the site is approximately 20 years. The municipality uses a cell method to dispose of the waste in an old quarry.

6.7.4 FIRE SERVICES AND DISASTER MANAGEMENT

The Sarah Baartman DM has a District Fire Co-ordinator in its employment which acts as Chief Fire Co-ordinator. The DM is providing continuous support and capacity to LMs to deal with the fighting of fires, including Hazardous Chemical spillages. In addition, training of Municipal fire officers, on both firefighting and the handling of Hazardous Material Spillage is a priority of the DM in this field. The DM has further ensured that all fire fighting vehicles in the district are being standardised throughout its area (Sarah Baartman DM IDP, 2015/16 Review).

The Makana Municipality has a 24-hour fulltime fire service with Chief Fire Officer appointed as manager fire services. In addition to the corporate agreement with Sarah Baartman DM to perform the function on agency based, the Municipality has cooperative agreements with all the other local municipalities in the district. Partnerships have been established with Provincial Government, District and Non-governmental organisations with a responsibility or capacity to render disaster management services. In terms of the Makana LM Disaster Management Plan the risk assessment revealed that the Municipality is prone to tornadoes, floods, fires (veld and forest fires), epidemics and accidents.

6.7.5 COMMUNITY SAFETY

In addition to Police Stations, five (5) Community Policing Forums (CPFs) have been established in Makana LM. Concern has been raised around the effectiveness of these forums and the lack of visibility of the SAPS (Makana LM IDP, Revision 5).

Table 6-5: Police Stations per Ward.

NAME OF POLICE STATION	WARD
Makhanda CBD area	8
Riebeeck East	1

Alicedale	14
Fort Brown	1
Extension 6 New Police Station	6
Seven Fountain	14
Committees Drift	1
Joza Police Station	6

6.7.6 HEALTH SERVICES

Health services are now provided by the Department of Health. There are twelve clinics and two ambulance services (i.e. EMS and Netcare) all stationed in Makhanda. For those patients referred to either Port Elizabeth or East London there is transportation organised by the hospital and the ambulance service (Makana LM IDP Revision 5).

INSTITUTION	CONTACT	ADDRESS	TELEPHONE
Town Clinic	Mrs. Haywood	Huntley Street	(046)6223430
Grahamstown Mobiles 1, 2 & 3	Mrs. De Beer /Mr. Isaacs	Huntley Street	(046)6224901
Joza Clinic	Mrs. September	Nompondo Street	(046)6036026/ 6152
Kwa-Nonzwakazi Clinic	Mr. Isaacs	Recreation Street	(042)2311019
Middle Terrace Clinic	Mr. Isaacs	Middle Terrace Street	(046)6036043/ 6102
NG Dlukulu Clinic (Ext 7)	Mrs. De Beer	Sani Street	(046)6036089
Raglan Road Clinic	Mrs. Bunu	Raglan Road	(046)6036084
Riebeeck East Clinic	Mr. Isaacs	Komadagga Road	(046)6224999
Settlers Day Hospital	Mrs. Menziwa	Cobden Street	(046)6223033
Tantyi Clinic	Mrs. Somngesi	"T" Street	(046)6036153
Settlers Hospital (Public)	Mrs. A Potts(Acting CEO)	Milner street	(046)602 5000
Settlers Hospital (Private)	Mr. Mutla (Hospital Manager)	Milner street	(046)602 5000
Fort England Hospital	Dr Walsh (CEO)	York Street	046 622 7003

6.7.7 EDUCATIONAL FACILITIES

There are 33 Primary Schools, eight High Schools, three Pre-schools and two Combined Schools in the Makana area. Makana LM also boasts a host of private schools, such as DSG, St Andrews and Kingswood College with Amasango & Kuyasa for kids with special needs (Makana LM IDP Revision 5). The town of Makhanda hosts some of the oldest schools. It is the seat of Rhodes University, as well as other prominent and internationally acclaimed primary and high schools. Rhodes University is a 104-year-old internationally recognised institution with a well-established reputation for academic excellence (www.localgovernment.co.za).

6.7.8 ROAD NETWORK

Approximately 82% of the 8 420 km road network in the DM are gravel roads, posing financial and human resources challenges, as gravel roads require a structured maintenance programme. A study compiled in 2007 by the Department of Transport indicated that more than 20% of the surfaced road network in the

Province is in a poor or very poor condition (Sarah Baartman DM IDP, 2015/16 Review). This is a disconcerting fact. Of the 757.4 km municipal road infrastructure in Makana LM, 588 km is gravel and 169 km tarred.

Makhanda is situated on the N2, which links it to East London/ Bisho and Port Elizabeth. Other important road links are:

- ✦ The R400 links Makhanda to Riebeeck East and the N10.
- ✦ The MR476 links Makhanda and Alicedale.
- ✦ The R343 links Makhanda and Salem to Kenton-on-Sea and Alexandria.
- ✦ The R350 links Makhanda to Bedford.
- ✦ The R344 links Makhanda to Adelaide.
- ✦ The R67 links Makhanda to Port Alfred in the South and Fort Beaufort to the North.

No functional rail service exists and the feasibility of changing the train station to a bus station /depot is being investigated (Makana LM IDP Revision 5). There is a Municipal airstrip just outside of Makhanda, adjacent to the Army Base.

6.8 LAND REFORM PROGRAMMES

The Land Reform Programme was developed to promote land acquisition, restore land rights lost through dispossession and achieve tenure upgrade. The Department of Rural Development and Land Affairs (DRD & LR) has compiled an Area Based Plan for the Sarah Baartman DM area as a whole. Fundamentally the Plan seeks to integrate Land Reform into the municipal planning process wherein identified projects are supported during and post implementation phases to ensure sustainability. The Area Based Plan also aims to develop an implementation tool for pro-active land acquisition to facilitate acquisition of land to meet the 2014 target of transferring 30% of white owned land into the hands of the black farming class (Makana LM IDP Revision 5). To date the Sarah Baartman DM has achieved redistribution amounting to 6.31% of the 30% target. 18.62% of Makana LM's 30% target has been achieved and 70 428 ha still needs to be redistributed in the next six years (Sarah Baartman DM IDP, 2015/16 Review).

In the region of the study area, Makhanda, Alexandria and Port Alfred are key focus areas, where farming holds economic advantages for dairy, cattle and pineapple production. As part of the SIA possible land claims that could affect the proposed WEF project would be determined and analysed.

6.9 COMPETING LAND USES IN THE AREA

The following table (Table 6-6) includes a list of competing land uses within the proposed Albany WEF area.

Table 6-6: Competing Land Uses – Albany WEF Site

COMPETING LAND USES WITHIN THE ALBANY WEF SITE PROXIMITY			
Negative -		Positive & Negative +/-	
The region, within which the Albany WEF is being proposed, area includes a number of properties which form part of the tourism industry. These properties include private game farms, public game reserves, protected areas and consumptive (hunting) properties. As a competing land	Visual Impact (-)	The current WEF land parcels include small scale livestock farming and citrus production. The WEF would provide a subsidy to these farmers who could then use the additional income to expand their agricultural ventures and make their farms more profitable.	Agricultural Impact (+)
	Socio-Economic Impact (-)		Agricultural Impact (-)

<p>use, the WEF would have possible visual impacts which could lead to socio-economic impacts.</p>		<p>Farming and WEFs are not mutually exclusive. Surrounding livestock industry in the area should not be impacted on by the proposed WEF as farming and WEFs are not mutually exclusive.</p>	
<p>A section of the proposed WEF is situated within the Makana Local Municipality commonage area which is currently used for livestock grazing. Should the neighbouring formal settlements need to expand then these pieces of land would form part of the likely settlement option. The development of the WEF on these land parcels would limit future rural settlement on these specific sections.</p>	<p>Socio-Economic Impact (-)</p>	<p>Mining in the form of small scale quarries (shale, sand, etc.) within the area may be impacted on by the proposed WEF. In order to secure land tenure the proposed WEF would have to ensure that it does not impact upon the existing mining activities. Mining and WEFs are not mutually exclusive. Due to the number of mines in the area, specifically to the western section of the site (near the Eskom infrastructure) the sense of place has already been industrialised to a certain degree. Limiting the area's mining footprint on the specific land parcels which have been selected, based on wind potential, may have a positive ecological impact.</p>	<p>Ecological Impact (+) Socio-Economic Impact (-)</p>
		<p>A section of the proposed WEF is situated within the Makana Local Municipality commonage area. The development of turbines within these areas would mean much needed income for the Makana Local Municipality and would mean that the area would be maintained as grazing for local livestock farmers. The potential of urban sprawl would be restricted by the turbines.</p>	<p>Agricultural Impact (+) Ecological Impact (+) Socio-Economic Impact (+)</p>
		<p>The proposed site is situated adjacent to existing Eskom infrastructure in the form of powerlines, substations and other industrial developments. This site is far more suitable than competing WEFs in the area due to its proximity to the grid. The proximity to the grid reduces the need for lengthy powerlines (connection points) and large scale substations (the existing substation will be available to feed into). In terms of industrial developments within the WEF area, the eastern properties also include a telecoms tower.</p>	<p>Visual Impact (+) Ecological Impact (+) Avifaunal Impact (+) Socio-Economic Impact (+)</p>

7 ALTERNATIVES

7.1 REASONABLE AND FEASIBLE ALTERNATIVES

Alternatives should include consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. In all cases, the no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- the property on which or location where it is proposed to undertake the activity.
- the type of activity to be undertaken.
- the design or layout of the activity.
- the technology to be used in the activity.
- the operational aspects of the activity.
- the option of not implementing the activity.

7.2 FUNDAMENTAL, INCREMENTAL AND NO-GO ALTERNATIVES

7.2.1 FUNDAMENTAL ALTERNATIVES

Fundamental alternatives are developments that are totally different from the proposed project description and usually include the following:

- Alternative property or location where it is proposed to undertake the activity.
- Alternative type of activity to be undertaken.
- Alternative technology to be used in the activity.

7.2.2 INCREMENTAL ALTERNATIVES

Incremental alternatives relate to modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts. There are several incremental alternatives that can be considered with respect to the current wind farm project, including:

- Alternative design or layout of the activity.
- Alternative operational aspects of the activity.

7.2.3 NO-GO ALTERNATIVE

It is mandatory to consider the “no-go” option in the EIA process. The “no-go” alternative refers to the current status quo and the risks and impacts associated with it. Some existing activities may carry risks and may be undesirable (e.g. an existing contaminated site earmarked for a development). The no-go is the continuation of the existing land use, i.e. maintain the status quo.

7.3 ANALYSIS OF ALTERNATIVES

Table 7-1 illustrates the methodology used to assess the identified alternatives. The table assesses the advantages and disadvantages, and provides further comments on the selected alternatives.

The categories of alternatives that are assessed include:

- Location;
- Activity;
- Associated technology;
- Design and layout; and
- No-go alternative.

FINAL

Table 7-1: Albany WEF Alternatives.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
<p>Property or location This refers to the fundamental location options, and the environmental risks and impacts associated with such options.</p>	<p>Alternative location 1 - Current proposed site (Preferred alternative).</p> <p>This site has been selected based on good wind resource potential, land availability and the sites proximity to available electricity grid.</p>	<ul style="list-style-type: none"> ➤ Located close to existing necessary Eskom electrical infrastructure, grid access is located on site. ➤ Suitable wind resource. ➤ Land availability (Albany Wind Energy and landowners have formally agreed to the proposed development on the site and are in full support of the use of this area). 	<ul style="list-style-type: none"> ➤ Land previously undeveloped. ➤ Potential visual intrusion to surrounding communities. ➤ Potential impacts on avifauna and bats. 	<p>YES</p>	<p>The main determining factors for selecting the proposed location were:-</p> <ul style="list-style-type: none"> ➤ Proximity to a grid connection point. ➤ Available land. ➤ Available wind resource. <p>Preliminary investigations have identified that the proposed project site meets the above land specifications.</p> <p>Please refer to Section 6.9 (Table 6-6) of this report for a list of competing land uses within the Albany WEF area. These land uses will be investigated in the EIR phase to further inform the suitability of the proposed site.</p>
	<p>Alternative location 2 - None identified as the rights to sufficiently large enough contiguous parcels of private land must be sought from local landowners. Location 1 has been agreed to. Alternative sites in the area that are close to Eskom electrical infrastructure, do not</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>Alternative locations for the current project are limited and where not deemed to be either reasonable or feasible due to the following:</p> <ul style="list-style-type: none"> ➤ The available wind resource is the most critical aspect of a wind energy project since a feasible WEF must generate sufficient energy to be financially feasible in terms of REIPPPP. ➤ A feasible WEF must also be located close to a connection point into the Eskom grid and substation. This is a critical factor to the overall technical and financial feasibility of the WEF project.

Table 7-1: Albany WEF Alternatives.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
	yield the same wind resource potential.				➤ Therefore, alternative <u>locations</u> for the proposed Albany WEF, were not assessed.
Type of technology This refers to the fundamental technology options, such as energy generation from wind vs. coal fired power plant, etc. and the environmental risks and impacts associated with such options.	Alternative energy technology 1 – Wind turbines (Preferred alternative)	<ul style="list-style-type: none"> ➤ Clean and renewable energy. ➤ Mitigate climate change ➤ Does not require large areas of land. 	<ul style="list-style-type: none"> ➤ Visually intrusive ➤ Avifaunal impacts ➤ Bat impacts 	YES	The activity does not exclude all current land uses i.e. Wildlife and stock grazing can still take place between turbines.
	Alternative energy technology 2 – Solar PV	<ul style="list-style-type: none"> ➤ Clean and renewable energy. ➤ Mitigate climate change. 	<ul style="list-style-type: none"> ➤ Visually intrusive (but less so than a WEF) ➤ Requires a large area of land ➤ Requires more water than wind does ➤ Generates less power per hectare than wind does 	NO	Wind and solar are not mutually exclusive, i.e. both developments can take place in close proximity to one another. The amount of land secured is not large enough to support a solar PV development. In terms of output, wind energy has a higher potential than solar PV based on suitable land available on the site. This site is also not optimally suited to solar energy, other areas in South Africa such as the Northern Cape Province and Aliwal North in the Eastern Cape are more suited to this renewable energy resource.
	Alternative energy technology 3 – Concentrated Solar Power (CSP)	<ul style="list-style-type: none"> ➤ Clean and renewable energy ➤ Mitigate climate change. 	<ul style="list-style-type: none"> ➤ Visually intrusive. ➤ Requires large area of land. ➤ Water a significant limiting factor. 	NO	There is not enough intense radiation in the area to be considered viable. The solar atlas shows the project area to occur in an area that receives <6.0 kWh/m ² of solar radiation per day. Although favourable for solar radiation there are areas in South Africa that receive between 7 and 8 kWh/m ² radiation per day

Table 7-1: Albany WEF Alternatives.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
			<ul style="list-style-type: none"> ➤ Reflectivity of mirrors potentially a significant issue visually and in terms of avifauna. 		which is preferable when compared to areas that receive 6kWh/m ²
	Alternative energy technology 4 – Coal fired power plant	<ul style="list-style-type: none"> ➤ None identified 	<ul style="list-style-type: none"> ➤ Air pollution from coal dust and smoke stack emissions (SO₂). ➤ Contribution to climate change. ➤ Ground contamination from coal dust. 	NO	Not environmentally desirable and would not qualify for REIPPPP.
	Alternative energy technology 5 – Biomass	<ul style="list-style-type: none"> ➤ Clean and renewable energy. ➤ Mitigate climate change. 	<ul style="list-style-type: none"> ➤ Expensive source of energy, requiring large amounts of feedstock 	NO	Sufficient suitable biomass may not be available in proximity to the site. Biomass energy is mutually exclusive.
	Alternative energy technology 6 – Nuclear Power	<ul style="list-style-type: none"> ➤ Greater electricity generation with little raw material required 	<ul style="list-style-type: none"> ➤ Raw material highly radioactive 	NO	The significant dependence of nuclear energy generation on high volumes of water preclude its development on the proposed site. Nuclear energy is mutually exclusive.

Table 7-1: Albany WEF Alternatives.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
			<ul style="list-style-type: none"> ➤ Water availability a severe limitation. In South Africa, which is a water scarce country, the most suitable sites for Nuclear Power are situated adjacent to the ocean. 		
Design or layout This relates mostly to alternative ways in which the proposed development or activity can be physically laid out on the ground to minimise or reduce environmental risks or impacts	Alternative layout 1: Preliminary WEF layout, access route, electrical switching stations and short connecting powerline	<ul style="list-style-type: none"> ➤ The preliminary layout consisted of 90 turbines which underwent a desktop screening phase (by the proponent) and was reduced to 66 turbines and refined during for assessment as the preferred alternative. 	<ul style="list-style-type: none"> ➤ There may be impacts associated with upgrading and expanding road reserves in sensitive environments. 	YES	Considering the WEF layout: A maximum of 66 turbine structures have been assessed. The preferred layout (which has undergone pre-screening) has been informed by the feasibility and EIA process and associated specialist assessments. Thus the final proposed WEF layout will be included in the final EIA report as the optimal layout from an environmental perspective, where all environmentally sensitive areas have been designated as NO-GO areas. Due to ongoing technological advancements in the turbine development industry, the range of output for the proposed WEF has been set to approximately 4.5MW. Based on the current economics of the proposed project a minimum of 35 4.5MW machines would be required to make the project economically viable. However, since the wind turbine market is rapidly evolving, should smaller machines become more
	Alternative layout 2 Preferred WEF layout site access route, electrical switching stations and evacuation powerline	<ul style="list-style-type: none"> ➤ The preferred alternative has will undergo a rigorous environmental assessment to confirm its suitability for the area and will be refined based on the outcomes of the 		YES	

Table 7-1: Albany WEF Alternatives.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
		specialist assessments during the EIA phase.			competitive for the project, the developer would like to retain flexibility on the maximum output of each turbine authorised.
<p>Operational aspects This relates mostly to alternative ways in which the development or activity can operate in order to reduce environmental risks or impacts</p>	<p>Alternative operational activities</p>	<p>➤ Operational Management alternatives will be informed by specialist input (e.g. bird and bat monitoring) through on-going operational monitoring.</p>	N/A	<p>YES</p>	<p>Operational alternatives will be informed by the specialists. The most pertinent specialists who will inform operational alternatives are the bat and avifaunal specialists. Should these specialists find that certain turbines require curtailment due to their location then this will be included as part of the operational management of the WEF. Should management stipulations be required for the proposed Albany WEF then they will form part of the Environmental Management Programme (EMPr) of the proposed WEF.</p>
<p>No-go option This refers to the current status quo and the risks and impacts associated to it.</p>	<p>Small stock grazing and small scale game farming.</p>	<p>➤ Will remain relatively undisturbed.</p>	<p>➤ No contribution towards the national renewable energy target. ➤ Potential for the alien vegetation on site to continue detrimentally affecting the local flora.</p>	<p>YES</p>	<p>Assessed in this report.</p>

7.4 SITE SELECTION: WIND CAPABILITY

In order to prove the wind resource potential of a proposed WEF site, it is necessary to erect a wind measurement mast to gather wind speed data and correlate these measurements with other meteorological data in order to produce a final wind model of the proposed project site. A measurement campaign of at least 12 months in duration is necessary to ensure verifiable data is obtained. This data will advise on the economics of the project and finalise the positions of the wind turbines. The masts are marked as per the requirements of the Civil Aviation Authority (CAA).

The following image (Figure 7-2) indicates the wind capability figures for the Albany WEF site as per the CSIR data. The South African Wind Atlas (CSIR *et al*, 2014) indicates that the area has an average wind speed of between 7.5 and 10 m/s as illustrated by the mesoscale map below. These high wind speeds have been confirmed by Albany Wind Power who erected two wind measurement masts on site, an 85 m mast and a 120 m mast. The 85 m mast has been collecting data since the 3rd of September 2012, and the 120 m mast has been collecting data since the 8th of August 2015.



Figure 7-1: An example of a meteorological mast (Albany 120m).

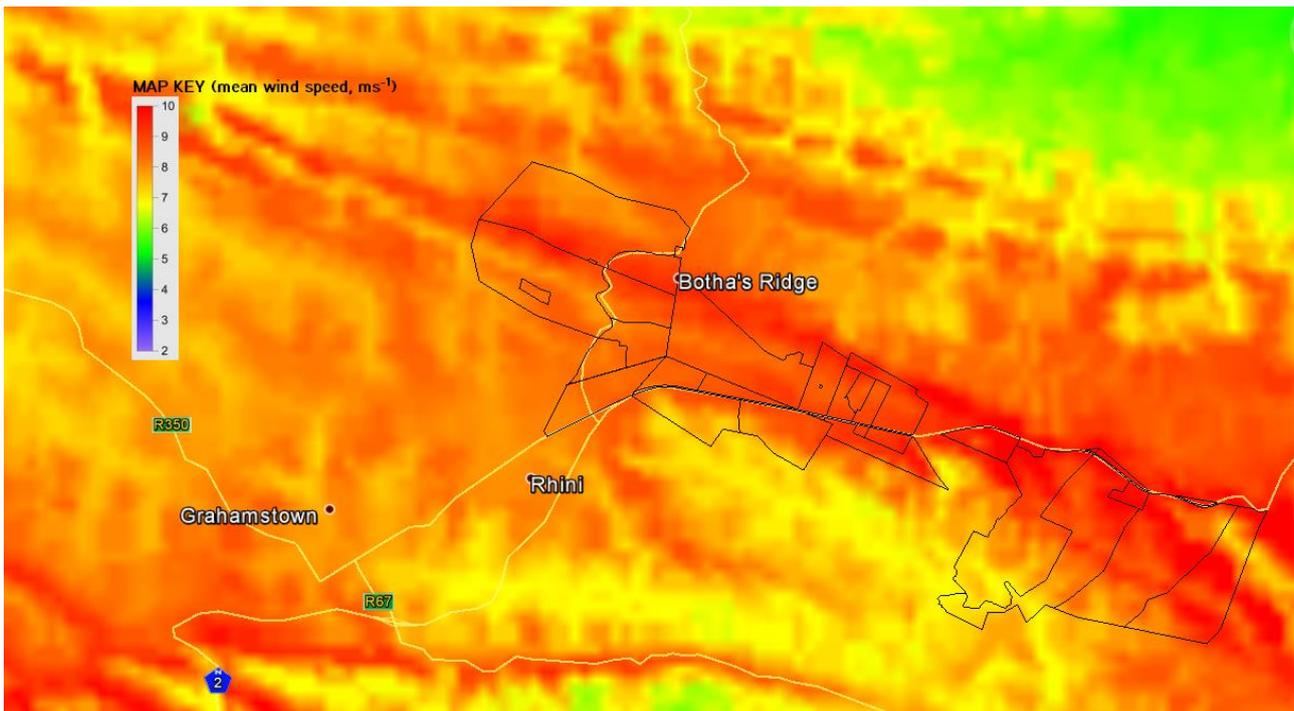


Figure 7-2: Wind Capability Statistics (mean wind speed, ms^{-1} , CSIR).

7.5 ALBANY WEF DISTANCE FROM REDZS

On the 17th of February 2016, the Cabinet of the Republic of South Africa (Cabinet) approved the gazetting of Renewable Energy Development Zones (REDZs).

REDZs refer to geographical areas where wind and solar PV development can occur in concentrated zones, which will lead to:

- a reduction of negative environmental consequences;
- alignment of authorisation and approval processes;
- attractive incentives; and
- focused expansion of the South African electricity grid.

Cabinet further stated that the REDZs will, among others, accelerate infrastructure development and contribute in creating a “predictable regulatory framework that reduces bureaucracy related to the cost of compliance”.

The DEA’s media statement issued in respect of the approved gazetting of the REDZs provided that 8 REDZs and 5 Power Corridors have been identified. The REDZs are located in Overberg (Western Cape), Komsberg (Western Cape), Cookhouse (Eastern Cape), Stormberg (Eastern Cape), Kimberley (Free State/Northern Cape), Vryburg (North West), Upington (Northern Cape) and Springbok (Northern Cape).

The 5 Power Corridors are planned as follows: The central corridor runs for the first time from the south of the country to the north. Two corridors run along the east and west coasts, while the fourth and fifth include interconnections with Botswana, Namibia and Zimbabwe to accommodate current and forecasted imports and exports of electricity. Eskom estimates that the thousands of kilometres of transmission lines and infrastructure needed to create these corridors of power will take eight years to construct and cost approximately R213bn.

The REDZs and Power Corridors support 2 of the 18 Strategic Integrated Projects (SIPs), which were identified

in the Infrastructure Development Plan which is aimed at promoting catalytic infrastructure development to stimulate economic growth and job creation.

The proposed Albany WEF falls within a small section of REDZ 3 (Cookhouse) on the western side of the proposed WEF. Approximately 20% of the site falls within this REDZ.

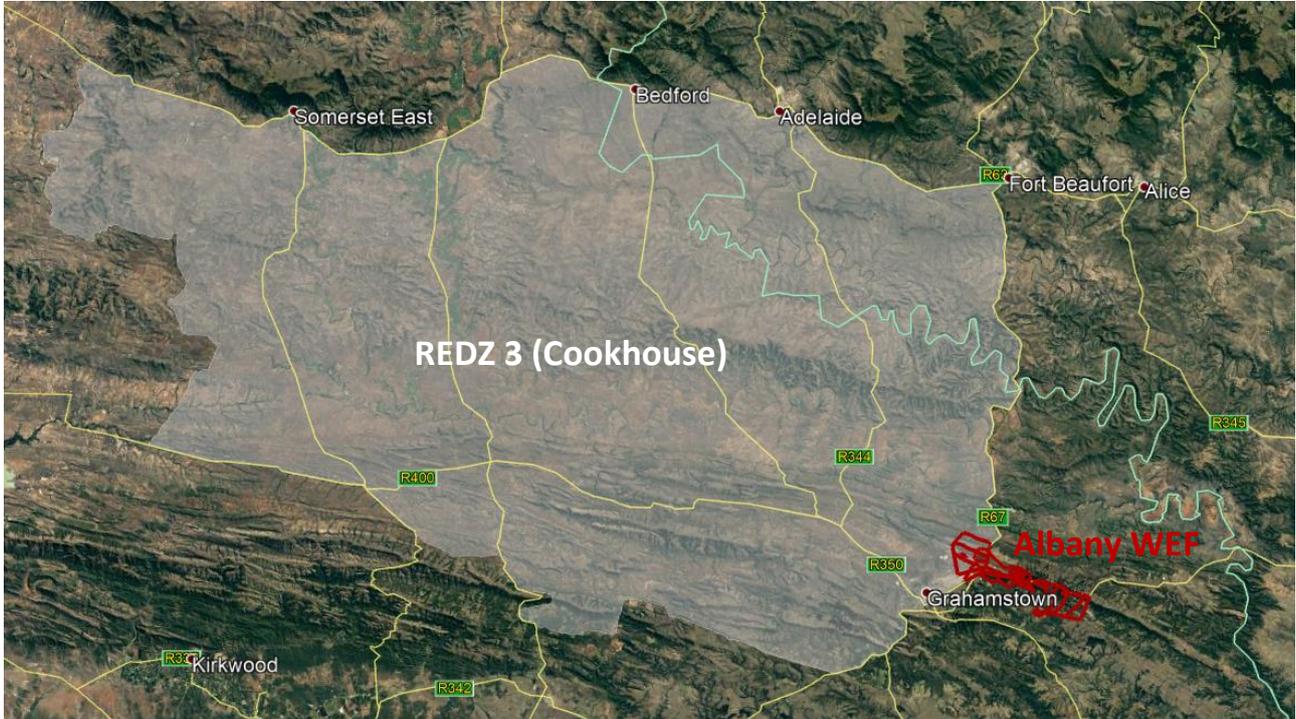


Figure 7-3: Albany WEF is proximity to the legislated REDZ (specifically REDZ 3)

8 MANNER IN WHICH THE ENVIRONMENTAL COULD BE AFFECTED

8.1 ASSESSMENT OF IMPACTS

CES has developed a revised rating scale for the Scoping Phase in accordance with the requirement outlined in Appendix 2 of the amended EIA Regulations (2014, and amended in April 2017). This scale takes into consideration the following variables:

- Significance
- Consequence
- Extent
- Duration
- Probability
- Reversibility and Mitigation

It is however important to note that impacts are assessed and rated on a broader issues level, and are regarded as preliminary. This is because, at the Scoping Phase, a limited amount of information on project related detail is available. This information requires input from a number of specialist assessments, which are only completed after the Scoping phase thus, a definitive assessment of project specific impacts cannot be completed at the Scoping phase, and our interpretation of the new requirements is that the environmental and social consequences of the project and alternatives needs to be discussed more broadly than what is required in the EIR. This we refer to as an issues level assessment.

8.1.1 ISSUES IDENTIFICATION MATRIX

Six factors are considered when assessing the significance of the identified issues, namely:

1. **Significance** - Each of the below criterion (points 2-6 below) are ranked with scores assigned, as presented in Table 1 to determine the overall significance of an activity. The total scores recorded for the effect (which includes scores for duration; extent; consequence and probability) and reversibility / mitigation are then read off the matrix presented in Table 8-1, to determine the overall significance of the issue. The overall significance is either negative or positive.
2. **Consequence** - the consequence scale is used in order to objectively evaluate how severe a number of negative impacts might be on the issue under consideration, or how beneficial a number of positive impacts might be on the issue under consideration.
3. **Extent** - the spatial scale defines the physical extent of the impact.
4. **Duration** - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
5. The **probability** of the impact occurring - the likelihood of impacts taking place as a result of project actions arising from the various alternatives. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development and alternatives. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.
6. **Reversibility / Mitigation** – The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in Table

8-1 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

Table 8-1: Ranking of Evaluation Criteria.

Effect	Duration	
	Short term	Less than 5 years
	Medium term	Between 5-20 years
	Long term	More than 20 years
	Extent	
	Localized	The proposed site and its immediate environs
	Moderate	District / Municipal and Provincial level
	Extensive	National and International level
	Consequence	
	Slight	Slight impacts or benefits on the affected system(s) or party(ies)
	Moderate	Moderate impacts or benefits on the affected system(s) or party(ies)
	Severe/ Beneficial	Severe impacts or benefits on the affected system(s) or party(ies)
	Probability	
Unlikely	The likelihood of these impacts occurring is slight (low probability)	
May Occur	The likelihood of these impacts occurring is possible (high probability)	
Definite	The likelihood is that this impact will definitely occur	
Reversibility/ Mitigation	Impact Reversibility / Mitigation	
	Low	The impact can be easily, effectively and cost effectively mitigated/reversed
	Moderate	The impact can be effectively mitigated/reversed without much difficulty or cost
	High	The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs
	Very High	The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly

8.2 IMPACTS MIND MAP

The impacts mind map (Table 8-2) provides at a high-level identification of the category/types of impacts that are expected by the proposed Albany WEF, under various themes.

Table 8-2: Mind map of the impacts identified within the scoping phase of the proposed Albany WEF.

MIND MAP: IMPACTS - PROPOSED ALBANY WEF					
THEMES	CATEGORIES	PLANNING & DESIGN PHASE	CONSTRUCTION PHASE	OPERATIONAL PHASE	DECOMMISSIONING PHASE
Physical Environment	Topography, geology and soils		X		
	Land use	X	X	X	X
	Top soil and soil erosion		X		X
	Surface and groundwater resources		X	X	X
Legislative Environment	Environmental, legal and policy compliance	X	X	X	X
Biological Environment	Terrestrial ecosystems	X	X	X	X
	Aquatic ecosystems	X	X	X	X
	Avifaunal impacts	X	X	X	X
	Bat impacts	X		X	X
Socio-economic Environment	Health and safety		X	X	X
	Archaeological, paleontological and cultural sites		X		
	Social benefits from the project		X	X	X
	Social pressures from the project		X	X	X
	Provision of electricity			X	X
Cross Cutting Impacts	Noise		X	X	X
	Traffic		X	X	X
	Visual		X	X	X
	Air quality		X	X	X

8.3 POSSIBLE ENVIRONMENTAL ISSUES AND IMPACTS

Table 8-3 to 8-6 provides more detailed environmental issues and resulting impacts that have been identified for the following phases of the project development: planning and design, construction and operation. The identification of these impacts has resulted in the recommendation of specialist assessments, which include:

- Ecological Impact Assessment;
- Agriculture & Soils Impact Assessment
- Avifaunal Impact Assessment;
- Bat Impact Assessment;
- Socio-economic Impact Assessment;
- Archaeological (Heritage) Impact Assessment;
- Paleontological Impact Assessment;
- Noise Impact Assessment; and
- Visual Impact Assessment

These impacts have been identified for all the various options proposed, and hence clarification of these options is gained, some of these impacts may become redundant.

All impacts have been split into “general impacts” and “specialist impacts”. For the purposes of the EIA process for the proposed Albany WEF the following distinction can be made between the impacts:

- **GENERAL IMPACTS:** *Impacts which have been identified by the EAP. Examples of key issues identified by the EAP, which will be unpacked as general impacts include:*
 - Climate change;
 - Waste;
 - Site management;
 - Environmental & legal compliance;
 - Construction scheduling; etc.
- **SPECIALIST IMPACTS:** *Impacts which have been identified by the specialist or impacts which have been identified by the EAP but require input from specialists. Examples of key issues identified as requiring specialist input, which will be unpacked as specialist impacts include:*
 - Socio-economic impacts associated with the development
 - Loss of agricultural resources;
 - Avifaunal impacts associated with turbine construction;
 - Bat impacts associated with turbine construction;
 - Loss of indigenous flora; etc.

All impacts identified in the following tables will require further investigation either by the EAP or by the identified specialist. It is likely that additional impacts will be added based on the results of the site assessments of the EAP and of each specialist.

Table 8-3: Issues and impacts identified in the planning and design phase of the proposed development

PLANNING AND DESIGN PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Traffic & Transport	<p>During the planning and design phase the inadequate planning for the transportation of turbine parts and specialist construction equipment to the site by long and/or slow-moving vehicles could cause traffic congestion, especially if temporary road closures are required.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: Definitely</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Further assessment will be undertaken during the EIA Phase and mitigation will be provided in the EIR and the EMPr in an effort to reduce this impact. ➤ A Traffic Management Plan must be compiled by a suitably qualified specialist during the Planning and Design Phase/prior to the commencement of the Construction Phase.
	<p>During the planning and design the integrity of existing highway infrastructure such as bridges and barriers must be taken into account to ensure that they are not compromised by the heavy vehicle traffic delivering components to the site.</p> <p><i>Nature: Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Unlikely</i> <i>Reversibility/Mitigation: Difficult</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ Project planning must include a plan for traffic control that will be implemented, especially during the construction phase of the development. Consultation with the local Road Traffic Unit in this regard should be done early in the planning phase. The necessary road traffic permits should be obtained for transporting parts, containers, materials and construction equipment to the site.
	<p>During planning and design, the inappropriate planning for road construction can increase the risk of surface water run-off, loss of biodiversity, soil erosion, etc.</p> <p><i>Nature: Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	HIGH (-)	
	<p>During the planning and design of road modifications, which may be necessary to allow for the delivery of components to site via heavy vehicles, could have long lasting traffic benefits.</p> <p><i>Nature: Direct</i> <i>Consequence: Beneficial</i> <i>Extent: Moderate</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>	LOW (+)	<ul style="list-style-type: none"> ➤ Further assessment will be undertaken during the EIA Phase and mitigation will be provided in the EIR and the EMPr in an effort to reduce this impact. ➤ The Socio-Economic Specialist will also assess the benefits associated with the

PLANNING AND DESIGN PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
			road modifications and upgrades.
Storage of hazardous substances	<p>During planning and design the inappropriate planning for the storage of hazardous substances such as diesel, paint, pesticides, etc., tools and equipment used on site could lead to surface and ground water pollution e.g. due to oil leaks, spillage of diesel etc. In addition, these hazardous substances could be washed off into nearby drainage lines. The mixing of cement on site could result in ground water contamination from compounds in the cement. In addition, a large number of cement mixing stations on site could increase the presence of impermeable areas which in turn could increase rates of run-off and thereby increase the risk of localized flooding, soil erosion, silting, gully formation, etc.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Further assessment will be undertaken during the EIA Phase and mitigation will be provided in the EIR and the EMPr to inform suitable methods of hazardous waste storage. ➤ All hazardous substances such as paints, diesel and cement must be stored in a bunded area with an impermeable surface beneath them. ➤ Cement mixing must be conducted at a single location which should be centrally located, where practical. This mixing must take place on an impermeable surface, and dried waste cement must be disposed of with building rubble.
Environmental Legal and Policy Compliance	<p>During planning and design, the failure to adhere to existing policies and legal obligations, could lead to the project conflicting with local, provincial and national policies, legislation etc. This could result in lack of institutional support for the project, overall project failure and undue disturbance to the natural environment.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Moderate</i> <i>Duration: Long Term</i> <i>Probability: Unlikely</i> <i>Reversibility/Mitigation: Easy</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ All necessary permitting and authorisations must be obtained prior to the commencement of any construction activities; and ➤ A suitably qualified Environmental Control Officer (ECO) must be appointed prior to the commencement of the Construction Phase.
Stormwater Management and Erosion	<p>During planning and design, the inappropriate design of roads and impermeable areas could increase rates of run-off and therefore the risk of localised flooding.</p> <p><i>Nature: Indirect</i> <i>Consequence: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Structures must be located at least 32 m away from identified drainage lines.

PLANNING AND DESIGN PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p><i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p> <p>During planning and design, the inappropriate design of stormwater management could lead to damage, pollution and potential flooding of the site. <i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ A Stormwater Management Plan must be designed and implemented to ensure maximum water seepage at the source of water flow. ➤ The plan must also include management mitigation measures for water pollution, waste water management and the management of surface erosion e.g. by considering the applicability of contouring, etc.
Management of general waste	<p>During planning and design, the inappropriate planning for management and disposal of waste e.g. storage disposal could result in surface and ground water contamination. <i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>		<ul style="list-style-type: none"> ➤ Develop and implement a Waste Management Plan for handling on site waste. ➤ Designate an appropriate area where waste can be stored before disposal.
Electromagnetic Interference (EMI)	<p>During planning and design, the failure to account for WEF interference to television, radio and microwave signal may negatively impact on surrounding users. <i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Accurate siting of wind turbines in the planning and design phase has reduced these effects. This includes approval from CELL C, SAWS, TELKOM, SENTECH, MTN and VODACOM. ➤ If complaints are received from surrounding landowners regarding this issue, the developer must investigate and mitigate these issues to the best of their abilities.
Shadow Flicker	<p>During planning and design the failure to take shadow flicker into account may have negative health impacts on surrounding landowners. The movement of the turbine</p>	HIGH (-)	<ul style="list-style-type: none"> ➤ The appointed Visual Specialist should assess the possible

PLANNING AND DESIGN PHASE

Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p>blades across the direction of sunlight causes a phenomenon called shadow flicker, which can result in health problems if people are regularly exposed to it.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>		<p>impact of shadow flicker on the individuals residing in proximity to the Albany WEF site.</p>
<p>Changes to Fluvial Geomorphology</p>	<p>During the planning and design, phase the incorrect placement and/or design of bridge pilings or culverts may result in scouring of the river bed in the areas immediately surrounding the pilings or culverts.</p> <p><i>Nature: Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	<p align="center">MODERATE (-)</p>	<ul style="list-style-type: none"> ➤ The potential impacts associated with the watercourse crossings must be assessed further in the EIR and suitable mitigation must be included in the EMPr. ➤ The EMPr must include suitable preventative measures to limit erosion and sedimentation of watercourses and the associated banks. ➤ Ensure that scour countermeasures are incorporated into the design of all bridge structures.
	<p>During planning and design, the insufficient planning for erosion prevention along the banks of the streams alongside the water crossing structures will result in erosion that may eventually impair the safety of the structure.</p> <p><i>Nature: Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	<p align="center">HIGH (-)</p>	
<p>Scheduling of Construction</p>	<p>During planning and design, incorrect construction scheduling that does not take into account the seasonal requirements of the aquatic environment, e.g. allowing for unimpeded flood events, could lead to short-term (and potentially long-term) impacts such as excessive sediment mobilization, etc.</p> <p><i>Nature: Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	<p align="center">MODERATE (-)</p>	<ul style="list-style-type: none"> ➤ Adequate bank stabilization measures must be incorporated into the design of the crossing structure.
<p>Loss of agricultural land</p>	<p>During the planning and design phase the loss of high potential agricultural land could have negative impacts on the agricultural integrity of the farms involved in the development.</p> <p><i>Nature: Direct and Cumulative</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i></p>	<p align="center">HIGH (-)</p>	<ul style="list-style-type: none"> ➤ The Agriculture and Soils Specialist should describe the agricultural potential of the proposed site as well as the cumulative impact of the loss of

PLANNING AND DESIGN PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<i>Probability: Definite</i> <i>Reversibility/Mitigation: Moderate</i>		agricultural land to development.
Loss of indigenous vegetation	During planning and design the inappropriate siting location for the installation of turbine platforms can cause unnecessary clearance of natural vegetation. <i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i>	MODERATE (-)	➤ The Ecological Specialist should assess the proposed locations of the turbine footprints and provide suitable mitigation measures to ensure that the minimum amount of vegetation required is cleared.
Disturbance of sensitive areas	During planning and design the inappropriate siting of turbines can result in unnecessary disturbance of sensitive areas and their sensitivity buffers. <i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i>	HIGH (-)	➤ A suitably qualified ECO should be appointed to monitor the vegetation clearance.
Damaging of heritage artefacts due to incorrect placement of turbines	During planning and design the failure to avoid heritage feature / artefacts could result in damage or the permanent loss of these features. <i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i>	HIGH (-)	➤ The appointed Heritage Specialist must locate existing, and identify potential, sensitive heritage resources and provide suitable buffers to mitigate impacts on these resources during the Construction Phase.
Change in scenery in the WEF area	During planning and design, incorrect placement of turbines in visually sensitive areas may negatively impact individuals' perceptions in terms of sense of place. <i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i>	MODERATE (-)	➤ The Visual Specialist should identify sensitive visual receptors and inform the WEF layout based on the visual sensitivity. This impact will be difficult to mitigate as individuals' perceptions of the Albany WEF will vary.
Noise generated by turbines close to sensitive receptors	During planning and design, the incorrect placement of turbines could impact on local people's health. The noise generated by turbines can impact people living within 500m of an individual turbine. <i>Nature: Direct</i> <i>Consequence: Moderate</i>	HIGH (-)	➤ The Noise Specialist should identify residences within proximity to the proposed Albany WEF site and provide

PLANNING AND DESIGN PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i>		suitable buffers to ensure that individuals residing in proximity to the site are not adversely impacted by the noise associated with the turbines.

Table 8-4: Issues and impacts identified in the construction phase of the proposed development

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Nuisance dust	During construction, dust generated by certain equipment is likely to be a potential nuisance. <i>Nature: Direct</i> <i>Consequence: Slight</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Easy</i>	LOW (-)	<ul style="list-style-type: none"> ➤ The Contractor will be responsible for the continued control of dust arising from construction activities. ➤ Areas in which topsoil will be stripped for construction purposes must be limited and only stripped when work is about to take place. ➤ The appropriate health and safety equipment (e.g. dust masks) should be worn by workers during the phases of dust-producing construction activity. ➤ Further assessment and mitigation should be provided in the EIR and EMPR.
Construction camp	During construction, campsite sprawl can cause unnecessary disturbance of vegetation and loss of biodiversity. <i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The location, layout and method of establishment of the construction camp must be clearly indicated and demarcated prior to the commencement of construction. ➤ The Ecological Specialist should provide suitable mitigation measures based in the floral and faunal sensitivity of the site, including any no-go areas.

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Access roads	<p>During construction, the unnecessary disturbance of habitats during road construction could cause loss of biodiversity.</p> <p><i>Nature: Indirect</i> <i>Consequence: Slight</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Ecological Specialist should provide suitable mitigation measures based in the floral and faunal sensitivity of the site, including any no-go areas.
Fire	<p>During construction, the runaway fires from cooking on the construction camp might lead to the burning of surrounding vegetation.</p> <p><i>Nature: Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	VERY HIGH (-)	<ul style="list-style-type: none"> ➤ The EIR and the EMPr must include suitable mitigation measures to reduce the likelihood of runaway fires occurring. ➤ The EMPr should include the contact details of the relevant emergency services in the area.
Stormwater management	<p>During construction, sediment is likely to be created, this could be washed off into the nearby drainage line e.g. during the excavation of foundations, the laying of access roads within the site, digging of cable runs and soil stripping and stockpiling to create foundations and temporary areas of hard-standing, such as the construction camp.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ A Stormwater Management Plan must be implemented throughout the duration of the Construction Phase.
Degradation of drainage lines from earthworks	<p>During construction, unplanned activities or earthworks that occur close to onsite drainage lines could cause adverse impacts such as soil erosion, siltation, and blockage of the drainage line.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ A Stormwater Management Plan and an Erosion Management Plan must be implemented throughout the duration of the Construction Phase.
Soil erosion	<p>During construction, soil could wash out of bare slopes before natural re-vegetation has established.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ An Erosion Management Plan and a Rehabilitation Management Plan must be implemented during the Construction Phase.

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Management of general waste	<p>During construction, littering by construction workers could cause surface and ground water pollution.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The EIR and accompanying EMPr must provide suitable guidelines for the management of general waste.
Hazardous substances	<p>During construction, the onsite maintenance of construction vehicles/machinery and equipment could result in oil, diesel and other hazardous chemicals contaminating surface and ground water. Surface and ground water pollution could arise from the spillage or leaking of diesel, lubricants and cement during construction activities.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Further assessment will be undertaken during the EIA Phase and mitigation will be provided in the EIR and the EMPr to inform suitable methods of hazardous waste storage.
Management of construction waste	<p>During construction, waste e.g. excess concrete and cement mixture, empty paint containers, oil containers, etc., could cause pollution of ground and surface water when they come into contact with run-off water.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Further assessment will be undertaken during the EIA Phase and mitigation will be provided in the EIR and the EMPr to inform the management of construction waste. ➤ The appointed ECO must monitor the management of construction waste during the Construction Phase.
Water Quality	<p>During construction, wet concrete could spill into surrounding watercourse. Wet concrete is highly alkaline. This could result in flash kills of macro-invertebrates and fish species in the vicinity.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ An Erosion Management Plan and Stormwater Management Plan must be implemented during the Construction Phase. ➤ The Contractor must take all reasonable measures to limit erosion and sedimentation due to construction activities and must comply with such detailed measures as may be required by the EMPr. ➤ Disturbed areas should be rehabilitated as soon as possible.
	<p>During construction, soil erosion may occur which will decrease the quality of the aquatic habitat downstream of the construction activities by silting over exposed rocks, decreasing the clarity and oxygen saturation of the water.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i></p>	MODERATE (-)	

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p><i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>		
Hydrology	<p>During construction the use of coffer dams have the potential to permanently change the flow dynamics in a river, exacerbating scour and enhancing sedimentation. Both of these changes can impact negatively on the aquatic ecosystem.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Water Use Authorisation is required from the Department of Water and Sanitation (DWS) for development within 100 m of any watercourses and within 500 m of any wetlands. ➤ All conditions and mitigations measures provided by the DWS and specified by the Ecological Specialist and the EMPr must be implemented.
Riparian Vegetation	<p>During construction the indiscriminate removal of riparian vegetation at the site of the bridge may lead to disturbance of the aquatic ecosystem.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ A Stormwater Management Plan and Erosion Management Plan must be implemented during the Construction Phase. ➤ The appointed ECO must monitor construction activities near the watercourses and the wetlands.
Infilling/Excavation in a Watercourse	<p>During construction activities, excavated material stockpiles may increase sediment loads in watercourses during rainfall events which could affect water quality.</p> <p><i>Nature: Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	LOW (-)	
	<p>During construction, materials used for the infilling of watercourses in order to construct water crossings may not be compatible with the surrounding bed/banks, etc., which could change the characteristics of the watercourse.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	LOW (-)	
Disposal of Spoil Material	<p>During construction, the incorrect disposal of subsoil/spoil material could result in significant loss of a useful resource.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Subsoil must not be disposed of onsite without the appropriate Waste License in terms of the NEMA: Waste Act.

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p><i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>		<ul style="list-style-type: none"> ➤ Spoil could be used to rehabilitate open borrow pits or erosion features. ➤ Disposal of spoil material to a registered landfill should be the last option. ➤ No spoil stockpiles will be allowed to remain onsite once construction activities have ceased.
Management of hazardous chemicals	<p>During construction, soil contamination and a loss of fertile soils as a result of hazardous chemical spills. <i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Machinery must be properly maintained to keep oil leaks in check. ➤ If a spill occurs on a permeable surface (e.g. Soil), a spill kit must be used to immediately reduce the potential spread of the spill. ➤ If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent materials. ➤ Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of hazardous chemicals to the environment, and stored in adequate containers until appropriate disposal in a licenced landfill site.
Increased risk of fires from construction activities	<p>During construction site personnel could start fires which could result in the loss of crops, grazing and livestock. <i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal, in appropriate waste disposal containers. ➤ Smoking must only be allowed in demarcated areas with easy access to fire-fighting equipment. ➤ Welding and other construction activities requiring open flames shall be done in a designated area containing fire-fighting equipment.

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
			<ul style="list-style-type: none"> ➤ The Agriculture & Soils Specialist should assess the potential impact resulting from the loss of crops, grazing and livestock as a result of fires.
Soil stockpiling management	<p>During construction, the incorrect stockpiling methods of soil will result in a decrease of agricultural viability/potential of these soils and may even cause sterilization of these soils due to a decrease in viable seed bank.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Develop and implement a Rehabilitation Management Plan to monitor rehabilitated areas. ➤ Implement measures such as wind-breaks, swales and watering to aid the initial growth of primary vegetation. ➤ Fertile topsoil must not be stockpiled for periods exceeding 12 months or exceeding 2 m in height. ➤ Topsoil may be supplemented with an indigenous seed mix.
Soil profile disturbance and resultant decrease in soil agricultural capability	<p>During construction the excavations for the turbines and associated infrastructure will disturb the soil profile. If topsoil becomes buried, or subsoil and rock that is less suitable for root growth, remains at the surface, the agricultural suitability of the soil, that will become available for agriculture again after decommissioning of the WEF, will be reduced.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	VERY HIGH (-)	<ul style="list-style-type: none"> ➤ The upper 15-20 cm of top soil must be stripped and stockpiled as topsoil. It should be retained for re-spreading over disturbed surfaces during rehabilitation. ➤ All other soil excavated will be stockpiled separately from topsoil as subsoil. ➤ Ensure that topsoil does not get buried by subsoil during backfilling. Failure to comply will result in topsoil sterilisation. ➤ The appointed ECO must monitor all excavations to ensure backfilling with subsoil followed by topsoil takes place. ➤ The appointed ECO must monitor depth and cover of topsoil spreading during rehabilitation to ensure a 30cm depth. ➤ Topsoil allocated for rehabilitation must not be mixed with other materials,

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
			<p>such as building rubble, rock, subsoil, etc.</p> <ul style="list-style-type: none"> ➤ Topsoil stockpiles are to be handled only twice – once during clearing and stockpiling and once during rehabilitation/backfilling.
Loss of vegetation during construction	<p>During construction, loss of natural vegetation due to vegetation clearing and sprawl beyond the development footprint. This could include the loss of plant Species of Conservation Concern (SCC).</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Moderate</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Existing farm tracks or access roads must be used as far as possible during construction. ➤ Construction activities must be demarcated and vegetation clearing and top soil removal limited to these areas. ➤ The layout must be surveyed in peak flowering season, prior to construction and protected plant species transplanted into the neighbouring environment; ➤ Permits to remove species found on the NEM:BA and PNCO list will be required prior to construction. ➤ In the event that a protected tree species needs to be removed, a permit to do so must be obtained from DAFF.
Disturbance to surrounding wildlife and fauna	<p>During construction, vehicular movement, noise and habitat destruction will disturb animals in the area.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slight</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Restrict construction activities to post-dawn and pre-dusk where possible. A list of activities permitted to occur outside of working hours is incorporated into the EMP. These activities may occur once permission has been granted by the landowner.
	<p>During construction, the potential loss of specialised faunal habitat due to clearing beyond the development footprint (wetlands, and riparian zones) may reduce faunal populations.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Moderate</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Construction must be undertaken in the shortest time practical. ➤ Enforce speed limits within the construction site (40km per hour is recommended).

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Disturbance of sensitive areas	<p>During construction activities erosion and degradation of watercourses and associated riparian habitats may occur due to irresponsible construction of access roads.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ The Ecological Specialist should inform the layout to ensure that the impact on sensitive watercourses and riparian vegetation is kept to a minimum. ➤ Construction through water courses, only where necessary, must occur within the smallest possible construction footprint, preferably during the dry season, and must be immediately followed by erosion stabilisation and re-vegetation.
Destruction of bird habitat during construction of the facility	<p>During construction avifaunal habitat loss is likely to occur.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ The Avifaunal Specialist must inform the layout to ensure that sensitive avifaunal areas and their associated buffers are avoided.
Disturbance of birds, particularly whilst breeding	<p>During construction activities the disturbance of birds is likely to occur. This is of particular relevance to those species which are breeding at the time.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	
Destruction of bat roosts due to earthworks and blasting	<p>During construction, the earthworks and especially blasting can damage bat roosts in rock crevices. Intense blasting close to a rock crevice roost can cause mortality to the inhabitants of the roost.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Bat Specialist must inform the turbine layout to ensure that sensitive bat areas and their associated buffers are avoided.
Artificial lighting	<p>During construction strong artificial lights used at the work environment during night time will attract insects and thereby also bats. However only certain species of bats will readily forage around strong lights, whereas others avoid such lights even if there is insect prey available. This can draw insect prey away from other natural areas and thereby artificially</p>	LOW (-)	<ul style="list-style-type: none"> ➤ Utilise lights with wavelengths that attract fewer insects (low thermal/infrared signature), such lights generally have a colour temperature of 5000K

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p>favour certain species, affecting bat diversity in the area.</p> <p><i>Nature: Indirect</i> <i>Consequence: Slight to Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>		(Kelvin) or more. If not required for safety or security purposes, lights should be switched off when not in use.
Loss of foraging habitat	<p>During construction of turbines and access roads some bat foraging habitat will be permanently lost. Temporary foraging habitat loss will occur during construction due to storage areas and movement of heavy vehicles.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Bat Specialist must inform the turbine layout to ensure that sensitive bat areas and their associated buffers are avoided. ➤ Keep to designated areas when storing building materials, resources, turbine components and/or construction vehicles and keep to designated roads with all construction vehicles.
Fossil heritage resources	<p>During construction the disturbance, damage, destruction or sealing-in of fossil remains preserved at or beneath the ground surface within the development area may occur.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ Monitoring of all substantial bedrock excavations for fossil remains by the appointed ECO, with reporting of new paleontological finds to ECPHRA.
Houses and farm walls	<p>During construction damage to built-structures older than 60 years in age may occur. All built structures older than 60 years are protected by SAHRA.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ All houses and walling within 50 m of the turbine footprints must be demarcated before any construction activities takes place in the area. ➤ No infrastructure may occur within 20 m of walling. ➤ The final layout must be assessed at a desktop level to determine whether or not onsite monitoring will be necessary during the construction phase.
Stone Age / Historical Period settlements	<p>During construction late Iron Age and Historical Period settlements and walling may be lost or damaged. These sites are protected by the SAHRA.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Access roads must be rerouted away from farm buildings. ➤ All mitigation measures which are recommended by

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
			the Heritage Specialist must be implemented.
Influx of jobseekers and the impact of temporary construction workers	<p>During construction there may be an influx of temporary workers and jobseekers which may have a negative impact on the area. These impacts include pressure on essential services and conflict between local people and outsiders.</p> <p><i>Nature: Indirect</i> <i>Consequence: Severe</i> <i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Socio-Economic Specialist must provide recommendations and mitigation measures to ensure that the municipality and the Developers work together to reduce or alleviate possible negative impacts.
Population changes	<p>During construction there may be an increase in population in the Makana LM. These population impacts refer to the degree to which the construction period could impact on the population size, gender, racial and age compositions of the local municipal areas and would thus be affected by the magnitude of 'outsiders' moving into the area and the length of the period that they remain.</p> <p><i>Nature: Indirect</i> <i>Consequence: Severe</i> <i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ It is recommended that Sub-Contractors only employ construction workers through a labour desk.
Employment opportunities and employment equity	<p>The construction period of the wind energy facility is labour intensive with positive socio-economic consequences. Although not certain at this stage, approximately 500 employment opportunities would become available over the short-term (24-month construction period). Employment is not constant and will start slow, reach a peak and then slow down again towards the end of the construction period.</p> <p><i>Nature: Direct</i> <i>Consequence: Beneficial</i> <i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	<ul style="list-style-type: none"> ➤ The Socio-Economic Specialist must provide recommendations and mitigation measures to enhance the benefits relating to employment opportunities for the local communities. ➤ Suitable semi and skilled employees should be identified. Tap into existing skills databases of the affected Municipalities and do a skills audit of the available workforce.
Skills development and capacity building of workers	<p>During construction, skills development and capacity building for workers, whether through training or hands-on experience would be a positive outcome of the construction phase. However, due to the relative short length of the construction phase it is doubtful that comprehensive skills training programmes could be undertaken over the short-term.</p> <p><i>Nature: Direct</i> <i>Consequence: Slightly Beneficial</i></p>	LOW (+)	<ul style="list-style-type: none"> ➤ Involve the Local and District Municipalities in the ED's and SED's from the onset of the project through open engagement. ➤ The Municipal structures, Ward Councillors and Ward Committees are

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p><i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: Unlikely</i> <i>Reversibility/Mitigation: N/A</i></p>		<p>responsible to transfer information to their constituencies, create task teams and/or PSC's that would ensure compliance with tender procedures.</p>
<p>Skills development of supporting industries / local SMMEs</p>	<p>During construction, supporting industries have may benefit from the influx of people. Supporting industries refer to small business enterprises and services that would be required to fulfil needs or requirements that develop as a result of the construction activities and would thus fall under the 'Enterprise Development' (ED) and 'Socio-economic Development' (SED) component of the project. This could include catering, laundry services, accommodation, suppliers of protective clothing, transport and so forth.</p> <p><i>Nature: Indirect</i> <i>Consequence: Slightly Beneficial</i> <i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>	<p>LOW (+)</p>	<p>➤ Municipal structures should train SMMEs and PDIs and assist them in registering and preparing for tender.</p>
<p>Local procurement</p>	<p>During the construction period local businesses could benefit through the use of local resources. The DoE prescribes a minimum of 40% local content (labour, material and goods), aiming for 65%. This would have positive impacts on the country's local economy. Aside from the most complex turbine parts (which will be imported and transported from Coega harbour, Port Elizabeth), infrastructure elements and the wind farm components will be sourced in South Africa, and where possible from within the local region. General construction materials and goods could be sourced from Makhanda and the wider region.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Beneficial</i> <i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>	<p>MODERATE (+)</p>	<p>➤ The Developer should implement local procurement policies that would enhance local and regional economic benefits.</p>
<p>Impacts on the Local Economy</p>	<p>During the construction period the local economy of Makhanda may be positively impacted. The DoE requires a local content between 40 and 65% which would ensure that a significant portion of the project benefits are reserved for the local economy (South Africa). However, it is uncertain what portion of the local content would be reserved for the 'local economy' at this point.</p> <p>However, definite positive impacts for the local economy associated with the construction phase are foreseen and would include:</p>	<p>MODERATE (+)</p>	<p>➤ The Developer must formulate a local procurement strategy to increase the local content of the project.</p>

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<ul style="list-style-type: none"> • Employment of locals and an increase in salary earners; • Contracts with SMME's and local service providers (catering, transport, etc.) where possible; • Local procurement of material and goods, where possible; • Positive impacts for the retail market (groceries, goods and services, food suppliers, etc.) for local merchants, shops and informal traders; and • Accommodation of foreigners in local establishments and its associated spin-offs. <p><i>Nature: Direct and Indirect</i> <i>Consequence: Beneficial</i> <i>Extent: Moderate</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>		
Disruption in daily living and movement patterns	<p>During construction disruptions in daily living and movement patterns for surrounding communities and road users could manifest in the form of traffic and intrusion impacts resulting in short-term disruptions and safety hazards, particularly during the site preparation phase (construction of access roads on site), laying of foundations and the erection phases.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➢ Announce disruptions, road closures and so forth by using the local media, road sign boards and other Municipal structures and collaborate with SANRAL and the various Local Municipalities and Disaster Management entities in the affected towns. ➢ Erect signboards indicating accesses to the construction site. ➢ The Socio-Economic Specialist should provide additional mitigation measures and recommendations to reduce the significance of disruptions to daily living and movement patterns.
Attitude formation, interest group activity, community mobilisation	<p>No interest group activity or community mobilisation for, or against, the proposed project has been observed. However, the following should be noted:</p> <ul style="list-style-type: none"> • A lack in communication, unrealistic expectations and other employment issues has the potential to result in labour tensions during the construction phase. • In addition to this, the DoE defines the beneficiary community as those communities located within a 50 km radius of the project. This requirement has the potential to create conflict, as portions of the affected Municipalities would 	LOW (-)	<ul style="list-style-type: none"> ➢ Involve the Makana LM from the onset of the project through open engagement. Set up a PSC represented by the various role-players and define the "beneficiary community" in clear terms. ➢ Make the contact details of the PSC available to the local communities should

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
	<p>be excluded from receiving socio-economic benefits.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>		<p>they wish to lodge complaints.</p> <ul style="list-style-type: none"> ➤ The Makana LM to set up appropriate structures (task teams, PSC, etc.) that would deal with the ED and SED components of the project (employment, community projects, etc.) in partnership with the developer.
Impacts on the Makana Local Municipality	<p>During construction of the Albany WEF specific impacts on the Makana LM could include:</p> <ul style="list-style-type: none"> • An increase in responsibilities to do a skills analysis, compile a database of an available local workforce, identify local service providers and provide relevant training; • Issuing of zoning permits timeously; • Representation on the Environmental Monitoring Committee (EMC), representation on a Project Steering Committee (PSC) and any other structures, which requires extra time and capacity; and • Legal responsibilities in terms of actions against land owners, the developer or any other parties that contravene Municipal bylaws. <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Municipal structures communicate with the various Municipal / Ward constituencies to ensure transparency and avoid that unrealistic expectations are created. ➤ Emphasis is once again placed on employment of locals, as locals may perceive that outsiders are “stealing” jobs. ➤ The Developer should timeously apply for the relevant zonings and permits.
Accommodation for workers	<p>During construction the local workers will commute from their homes on a daily basis. The only employees overnighing on-site would be limited to approximately eight (8) security personnel. A temporary construction camp will be established as last resort and the impact is deemed insignificant.</p> <p>Expatriates and other skilled employees are usually set up in Guesthouses and B&B’s and other accommodation facilities in the project vicinity. An opportunity exists for local establishments to profit from this opportunity with a positive impact on the local economy. There are many accommodation establishments in Makhanda and the availability is deemed to be sufficient.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slightly Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	<ul style="list-style-type: none"> ➤ Inform the Chamber of Business and local community structures about accommodation requirements in order for accommodation establishments to be prepared for the influx of people to Makhanda.

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Impacts on infrastructure and services	<p>During construction electricity and water may be interrupted. It is not anticipated that any major water and electricity services would be disrupted at this stage, however; electricity might be disrupted for a short period in time should the existing Eskom power lines be rerouted and when the WEF / switching station is connected into the grid. The Municipality would be notified in time should this take place.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: Unlikely</i> <i>Reversibility/Mitigation: Difficult</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ This impact is unlikely, but should this impact occur, the Socio-Economic Specialist should provide recommendations to reduce the significance of this impact.
Health and safety risks for workers	<p>During the construction phase the inadequate management of the construction process and general construction related activities could result in health and safety risks for workers.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ Construction workers to wear protective clothing (e.g. masks that minimize dust inhalation and clothing that protects against sunburn). ➤ Lock away dangerous plant, equipment and material when not supervised or in use. ➤ Dispose of the various types of waste generated in the appropriate manner at the licensed Makhanda waste fill sites at regular intervals. ➤ Identify the waste types that are likely to be produced and aim to reduce the amount of waste as much as possible, through identifying routes to reuse or recycle materials. Label all waste storage and skips, detailing the type of waste. ➤ Provide safe and clean drinking water and instil regular water breaks to keep workers hydrated. ➤ Provide sufficient chemical /portable toilets at strategic locations that are cleaned regularly. ➤ Keep the local fire, police and ambulance services informed of construction times and progress.

CONSTRUCTION PHASE			
Issue	Impact	Significance (Pre-assessment estimate)	Mitigation & Further Assessment
Security impacts	<p>During construction the security of the Albany WEF site may be compromised. The perception exists that criminal activities increase in areas where construction projects take place. The appointment of local construction workers often aids to mitigate potential security issues. General security on site should also receive attention as cables and other valuable material could attract criminals with negative economic consequences for the developer. Electric fencing, CCTV cameras, 24-hour security guards, random security checks throughout the site and access control to the site are some of the safety measures that could be implemented to eradicate potential crime on site and in the area.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	LOW (-)	<p>➤ The local SAPS and Ward Councillors should be informed about the construction progress and time-lines to ensure that they are able to adequately deal with any type of disruptive behaviour which could occur due to the project.</p>
Visual intrusion of construction equipment	<p>During the construction phase the equipment needed to erect the wind turbines may affect the 'sense of place' of local residents.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: Definitely</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<p>➤ Construction must be limited to normal working hours, between 07:00 and 18:00, to ensure that construction lighting on-site is limited, where possible. A list of activities permitted to occur outside of working hours must be incorporated into the EMPr during the EIA phase.</p>
Noise generated during the construction period	<p>The construction phase could generate noise during different activities such as:</p> <ul style="list-style-type: none"> • Site preparation and earthworks to gain access using bulldozers, trucks etc. • Foundation construction using mobile equipment, cranes, concrete mixing and pile driving equipment (if needed). • Heavy vehicle use to deliver construction material and the turbines. <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slight</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	LOW (-)	<p>➤ It is likely that the construction noise will have little impact on the surrounding community as construction will most likely occur during the day when the ambient noise is louder and there are unstable atmospheric conditions. The site is also situated in a rural farmland area and no communities are within immediate proximity of the site.</p>

Table 8-5: Issues and impacts identified in the operational phase of the proposed development

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
Air Quality: Climate change	<p>During operations the electricity generated by the development will displace some of that produced by fossil fuel-based forms of electricity generation. The scheme, over its lifetime, will therefore avoid the production of a significant amount of CO₂, SO₂ and NO₂ that would otherwise be emitted to the atmosphere.</p> <p><i>Nature: Direct</i> <i>Consequence: Beneficial</i> <i>Extent: Extensive</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	VERY HIGH (+)	<ul style="list-style-type: none"> ➤ This beneficial nature of this impact should be enhanced by promoting the use of renewable energy locally.
Lighting	<p>During operations the facility may be lit at night which could have adverse impacts on the landscape character and sense of place due to long-term visibility of land.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Night lighting impacts could be reduced by using shaded lighting and using lights at low levels. ➤ If complaints are received from the surrounding landowners, relating to shadow flicker, these must be investigated and mitigated to the best of the Developers' ability.
Architecture of ancillary infrastructure	<p>During operations the control buildings, toilet facilities and other ancillary infrastructure could cause negative visual intrusion if allowed to fall into disrepair and not maintained properly.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ All project structures and buildings, which are visible to the public, must be maintained to reduce the visual impact.
Hazardous chemical storage	<p>During operations the inappropriate storage of chemical, herbicides, diesel and other hazardous substances on site could result in soil and water contamination and also pose a high accident danger risk.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ All hazardous substances must be stored in appropriately bunded locations. ➤ The EMPr should recommend suitable mitigation measures to reduce the risk of hazardous contamination to the site and surrounds.
Operating equipment	<p>During the operational phase noise could be generated by transformers from the process of power conversion. The</p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ During the Operational Phase of the Albany

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
	<p>operation of auxiliary equipment needed to cool the transformers, including cooling fans and oil pumps could also generate some noise. This may cause negative health impacts on people living within the vicinity of the WEF.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>		<p>WEF, lower noise emission levels from inverters and transformers can be achieved by housing them in enclosed structures.</p>
Increased stormwater run-off	<p>During operations the failure to maintain the storm water system could increase the risk of surface water damage to the landscape and vegetation from increased rates of run-off and therefore the risk of localised flooding and increased sheet erosion downstream due to the presence of roads and impermeable areas of hard standing.</p> <p><i>Nature: Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Stormwater Management Plan should be implemented during both the Construction and the Operational Phases of the Albany WEF.
Waste management	<p>During operations there could be littering by maintenance workers and security personnel on site which may impact both flora and fauna in the area.</p> <p><i>Nature: Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Waste Management Plan should be implemented during both the Construction and the Operational Phases of the Albany WEF.
Increase in erosion potential	<p>During operations an increase in hard surfaces (concrete foundations and roads) will increase run-off and potentially lead to soil erosion.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Anti-erosion features must be installed where required. ➤ Ensure that all cleared and impacted land is rehabilitated and revegetated.
Establishment of renewable energy infrastructure on agricultural land	<p>During operation of WEFs within the greater Eastern Cape area the gradual reduction of available agricultural land may have negative economic impacts on the availability of profitable agricultural land.</p> <p><i>Nature: Direct and Cumulative</i> <i>Consequence: Severe</i> <i>Extent: Extensive</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Avoid developing on high potential agricultural land. High potential agricultural areas must be determined in the specialist report to inform the final WEF layout. ➤ If unavoidable, ensure that all development

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
			footprints are kept to a minimum.
Alien Species	<p>During operation the failure to monitor exposed land may lead to the invasion of alien plant species in disturbed areas which would detrimentally impact the local flora.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Easy-Moderate</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ An Alien Vegetation Management Plan must be implemented during the Operational Phase. ➤ Alien vegetation should be removed from the site as it is observed.
Disturbance of birds, particularly whilst breeding	<p>During operations the disturbance of birds by the turbines may occur. This is particularly relevant to the first season of operations and to those bird species which are nesting in the area.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term – Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ The Avifaunal Specialist should inform the layout of the Albany WEF and recommend suitable buffers for sensitive areas to reduce the impacts on bird species.
Displacement of birds from the site and barrier effects	<p>During operations the displacement of birds from the site due to this disturbance is likely. This may negatively impact on the avifaunal species composition of the site until the local avifaunal acclimatises to the change to the landscape.</p> <p><i>Nature: Direct</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	
Collision of birds with turbine blades	<p>During operations the collision of birds with turbines may occur resulting in the loss individual birds. This impact may be exasperated by the loss of protected / threatened bird species.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur-Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	
Barotrauma	<p>During operations bat mortalities may occur due to direct blade impact or barotrauma during foraging activities.</p> <p>Mortalities of bats due to wind turbines during foraging and migration can have significant ecological consequences as the bat species at risk are insectivorous and thereby contribute significantly to the control of flying insects at night. On a project specific level insect</p>	HIGH (-)	<ul style="list-style-type: none"> ➤ The Bat Specialist should inform the layout of the Albany WEF and recommend suitable buffers for sensitive areas to reduce the impacts on bats.

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
	<p>numbers in a certain habitat can increase if significant numbers of bats are killed off. But if such an impact is present on multiple projects in close vicinity of each other, insect numbers can increase regionally and possibly cause outbreaks of colonies of certain insect species.</p> <p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur-Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>		
Job creation	<p>During operations a few permanent employment positions (unskilled, semi- and highly skilled) would emerge. Employment positions could include:</p> <ul style="list-style-type: none"> • Technicians, electricians, IT specialists, engineers, administrators (highly skilled); • Security (semi-skilled); and • Civil works and site maintenance – grass cutting, road maintenance and so forth (lower skilled). <p><i>Nature: Direct</i> <i>Consequence: Beneficial</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	➤ No mitigation is required.
Skills development and capacity building	<p>During operations there is the potential for training which would have a positive impact on those involved. Two (2) types of training are envisaged:</p> <ul style="list-style-type: none"> • Training of workers on the plant; and • Training through the SED component of the project. <p>Although limited, skills development and capacity building would result as on-site training is likely. An important outcome of skills development and training is that employees would be in a position to source work on similar plants once their contracts expire. A skilled labour force is more likely to find employment, resulting in economic advantages for the local economy over the long-term.</p> <p>Once community and other income-generating projects have been identified training would take place to enable the community members to perform their duties and maximise the project benefits. The MOU between the developer and affected Municipalities should address skills development and training responsibilities during the operational phase and compliance with the MOU guidelines is essential.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slightly Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term-Medium Term</i> <i>Probability: Definite</i></p>	MODERATE (+)	➤ Maximize the number of local permanent and temporary employees (from the Local and District Municipality), where possible.

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
	<i>Reversibility/Mitigation: N/A</i>		
Impacts on the local economy	<p>During the operational phase it is expected that the local economy would benefit in the following ways:</p> <ul style="list-style-type: none"> The families of employees would benefit economically with an increase in incomes and spending power; A possible increase in municipal rates and taxes, as the land would be rezoned from “Agriculture” to “Special Use for Agriculture and Renewable Energy Infrastructure”, resulting in higher levels of rateable income; Local communities would benefit economically through shareholding and community upliftment and Social Development projects; and The establishment of local downstream industries and services that would support the WEF’s operations (to a lesser extent). <p><i>Nature: Direct and Indirect</i> <i>Consequence: Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term-Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	
Impacts on the local community due to community projects, ED and SED contributions	<p>During the operational phase as part of social responsibility and local economic development, the developer would, in consultation with the Makana LM:</p> <ul style="list-style-type: none"> Establish a community based BBEEE holding company that holds equity in the WEF project. The Trust would identify community-based projects and manage the funds derived through profit sharing to ensure that socio-economic benefits reach the intended beneficiaries (local community). The developer could in the initial phases of the project, allocate funds towards community-based projects. <p>Beneficiary communities are defined as those within a 50 km radius from the project site, i.e. Makhanda and Peddie.</p> <p>It is recommended that the project proponent embarks on a holistic, strategic approach for the Enterprise Development and (ED) and Socio-economic Development (SED) components of the project to avoid fragmented community projects in the region.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term-Long Term</i> <i>Probability: May Occur Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	<ul style="list-style-type: none"> ➤ Establish a PSC, forum or similar structure consisting of representatives of the local and district Municipalities and their relevant Directorates for Economic Development, with the objective to: <ul style="list-style-type: none"> ○ The PSC/forum will identify major “renewable energy development nodes” where wind energy projects are taking place and co-ordinate projects in a holistic manner; ○ PSC / forum prioritizes projects identified in the IDP’s and LED programmes; and ○ Formulate a strategy to achieve long-term sustainable goals

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
			that would include large economic development projects in the major “renewable energy development nodes” that would contribute to the region’s economic growth.
Impacts on land / market values of farm portions included in the project	<p>The operational WEF and associated infrastructure would in all likelihood add value to land that is included in the project for the duration of the project, as rental incomes would be secured for a 20 year period, with the possibility to extend.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slight-Slightly Beneficial</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>	LOW (+)	➤ No mitigation required.
Potential impact on rental incomes	<p>For the duration of the operational phase (20 years +), the landowners would benefit financially, as long-term lease agreements are concluded.</p> <p><i>Nature: Direct</i> <i>Consequence: Beneficial</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	
Electricity supply and the environment	<p>During the operational phase the proposed Albany WEF would have a positive impact on a regional and national level:</p> <ul style="list-style-type: none"> • Wind energy is renewable and sustainable and cannot be depleted, as is the case with fossil fuels; • Wind energy facilities generally require less maintenance with lower operational costs; • Renewable energy has minimal impact on the environment and produces little or no waste products, such as carbon dioxide and other chemical pollutants; and • Renewable energy projects can bring economic benefits for the country, e.g. in the form of new ‘green’ jobs. <p><i>Nature: Direct and Indirect</i> <i>Consequence: Beneficial</i> <i>Extent: Extensive</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	HIGH (+)	

OPERATIONAL PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
The effect of the WEF of the local sense of place	<p>During operations the visibility of the WEF from Makhanda, surrounding game farms, surrounding farms and informal settlement influencing the local people's sense of place.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	➤ No mitigation possible.
Distractions caused by the WEF	<p>During operations the visibility of turbines from the main road (N2) and secondary farm roads could cause distractions while driving.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	➤ The existing Waainek WEF is situated close to the main roads which means that the majority of the surrounding communities should be accustomed to turbines in their view while driving.
Low frequency noise due to turbine rotation	<p>During operations the effects of low frequency noise include sleep disturbance, nausea, vertigo etc. could have negative health impacts. These effects are unlikely to impact upon residents due to the distance between the turbines and the nearest communities. Sources of low frequency noise also include wind and vehicular traffic, which are all sources that also impact on the receptors.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: Unlikely</i> <i>Reversibility/Mitigation: Moderate</i></p>	LOW (-)	➤ The Noise Specialist should inform the final layout of the Albany WEF to ensure that no turbines occur within 500 m of any residences.

Table 8-6: Issues and impacts identified in the decommissioning phase of the proposed development

DECOMMISSIONING PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
Pollution	<p>During decommissioning of the WEF littering by construction workers could cause surface and ground water pollution.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<p>➤ Littering must be avoided, and litter bins should be made available at various strategic points on site.</p> <p>➤ Refuse from the construction (decommissioning) site should be collected on a regular basis and deposited at an appropriate landfill.</p>
	<p>During decommissioning onsite maintenance of construction vehicles/machinery and equipment</p>	MODERATE (-)	➤ No storage of fuels and hazardous materials should

DECOMMISSIONING PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
	<p>could result in oil, diesel and other hazardous chemicals contaminating surface and ground water. Surface and ground water pollution could arise from the spillage or leaking of diesel, lubricants and cement during construction activities.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>		<p>be permitted near sensitive water resources. All hazardous substances (e.g. diesel, oil drums, etc.) must be stored in a bunded area.</p> <ul style="list-style-type: none"> ➤ Vehicles should be serviced regularly to reduce the likelihood of oil spills.
Dust	<p>During decommissioning dust is likely to be a potential nuisance.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slight</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ Any complaints or claims emanating from the lack of dust control must be attended to immediately by the Contractor.
Traffic & Transport	<p>During decommissioning a high number of heavy vehicle movements will occur. This may have a detrimental effect on sensitive receptors, especially on existing vegetation.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Construction vehicles and machinery should make use of existing infrastructure such as roads as far as possible to minimise disturbance on the receiving environment. ➤ There must be no unnecessary vegetation disturbance.
Soil erosion	<p>During decommissioning and after the removal of all wind turbine related structures, the disturbed soils could become exposed, unstable and prone to erosion.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ After the removal of all wind turbine-related structures, the disturbed soils must be re-vegetated to avoid soil erosion. ➤ Remedial measures should be implemented at the first sign of an increase in erosion.
Land-use	<p>Decommissioning will result in the land which was previously unavailable for certain other land-use becoming available for those uses.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slightly Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: N/A</i></p>	LOW (+)	<ul style="list-style-type: none"> ➤ No mitigation required.
Long-term damage due to	<p>During the decommissioning phase poor rehabilitation could result in limited re-vegetation and long-term ecological damage.</p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ A percentage of operational earnings should be set aside for the Decommissioning

DECOMMISSIONING PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
poor rehabilitation	<p><i>Nature: Direct</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Long Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>		<p>Phase, which must include costs for landscaping and revegetation of the whole development footprint</p> <ul style="list-style-type: none"> ➤ The Rehabilitation Management Plan must be implemented and should include the primary objectives of rehabilitation and the latest acceptable methods for implementation.
Disturbance to surrounding wildlife and fauna	<p>During decommissioning, vehicular movement, noise and habitat destruction will disturb animals in the study area.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ Restrict decommissioning activities to post-dawn and pre-dusk, where possible. A list of activities permitted to occur outside of working hours must be incorporated into the EMPr. These activities may occur once permission has been granted by the landowner. ➤ Decommissioning of the turbines must be undertaken in the shortest time practical ➤ Speed limits must be implemented and enforced. 40km/h is recommended.
	<p>During decommissioning personnel on site may be tempted to poach wildlife which would have a negative impact on the local fauna.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Severe</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	HIGH (-)	<ul style="list-style-type: none"> ➤ Decommission workers must be transported to and from the site daily. ➤ An inspection of the immediate vegetation surrounding the turbine sites for evidence of snares must be undertaken.
Artificial lighting	<p>During decommissioning strong artificial lights used at the work environment during night time will attract insects and thereby also bats. However only certain species of bats will readily forage around strong lights, whereas others avoid such lights even if there is insect prey available. This can draw insect prey away from other natural areas and thereby artificially favour certain species, affecting bat diversity in the area.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Slight-Slightly Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ Utilise lights with wavelengths that attract fewer insects (low thermal/infrared signature), such lights generally have a colour temperature of 5000K (Kelvin) or more. If not required for safety or security purposes, lights should be switched off when not in use.

DECOMMISSIONING PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
	<i>Reversibility/Mitigation: Difficult</i>		
Loss of foraging habitat	<p>During decommissioning some foraging habitat will be permanently lost. Temporary foraging habitat loss will occur due to storage areas and movement of heavy vehicles.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Moderate</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ The Bat Specialist must inform the sensitivity map through the identification of high and moderate sensitive areas which should be avoided. ➤ Keep to designated areas for vegetation removal and keep to designated roads with all construction vehicles.
Job creation	<p>During decommissioning temporary workers would be required to do the dissembling and/or replacement of components and skilled employees (project managers, technicians, etc.) would also be required. The number of employment positions is unknown as this is new technology and none of the existing plants have as yet been decommissioned. However, it could be expected that suitable workers will be available as a large number of people would have gained relevant skills over the 20 year operational period of the Albany WEF and similar plants in the region.</p> <p><i>Nature: Direct</i> <i>Consequence: Beneficial</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: Definite</i> <i>Reversibility/Mitigation: N/A</i></p>	MODERATE (+)	<ul style="list-style-type: none"> ➤ No mitigation required. ➤ The Socio-Economic Specialist should provide recommendations to enhance the benefits associated with job creation.
Impacts on living and movement patterns	<p>During decommissioning there may be negative impacts on traffic movement patterns due to the large construction vehicles required to move new and old components to and from the site. Impacts on road safety, impacts on road infrastructure and dust generation would thus be pertinent.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<ul style="list-style-type: none"> ➤ No mitigation possible.
Safety and security concerns	<p>The decommissioning phase would increase the influx of people, which could increase the likelihood of safety and security issues.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i></p>	LOW (-)	<ul style="list-style-type: none"> ➤ The local SAPS and Ward Councillors should be informed of the construction progress and time-lines to ensure that they are able to adequately deal with any type of

DECOMMISSIONING PHASE			
Issue	Impact	Significance (Pre-mitigation)	Mitigation & Further Assessment
	<i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i>		disruptive behaviour which could occur.
Visual intrusion of construction equipment	<p>During decommissioning the visual intrusion of the equipment needed to dismantle the turbines may affect the local residents.</p> <p><i>Nature: Direct and Indirect</i> <i>Consequence: Moderate</i> <i>Extent: Localised</i> <i>Duration: Short Term</i> <i>Probability: May Occur</i> <i>Reversibility/Mitigation: Difficult</i></p>	MODERATE (-)	<p>➤ Dismantling must be limited to normal working hours, between 07:00 and 18:00 to ensure that construction lighting on-site is limited, where possible. A list of activities permitted to occur outside of working hours must be incorporated into the EMPr. These activities may occur once permission has been granted by the landowner.</p>

9 PUBLIC PARTICIPATION

9.1 NOTIFICATION OF INTERESTED AND AFFECTED PARTIES

Public consultation is a legal requirement throughout the EIA process. Developers are required to conduct public consultation throughout the Scoping and EIR phase. Formal EIA documents are required to be made available for public review and comment by the proponent, these include the Project Brief, Scoping Report and Terms of Reference for the EIA, the draft and final EIA reports and the decision of the Competent Authority (DEA). The method of public consultation to be used depends largely on the location of the development and the level of education of those being impacted on by the project. Required means of public consultation include:

- Site notice(s);
- Newspaper advertisement(s);
- Letter of Notification and information to affected landowner(s), stakeholders and registered I&APs (Proof: e-mail, fax, registered letters to DEA);
- Background Information Document (BID) distribution;
- Public meeting (Attendance register and meeting minutes); and
- Authority and Stakeholder engagement (DEA, DWS, SAHRA, DEDEAT, etc.).

Please note that all proof of Public notification has been attached as [APPENDIX 1](#).

9.1.1 NEWSPAPER ADVERTISEMENT

- Grocott's Mail (published on the 8th June 2018): See [APPENDIX 1](#).

9.1.2 ONSITE NOTICES

- Three (3) onsite notice boards have been erected: See [APPENDIX 1](#).

9.1.3 INTERESTED AND AFFECTED PARTIES (I&APs) IDENTIFICATION AND NOTIFICATION

In addition to the above notification, certain I&APs were identified based on their potential interest in the project. In Table 9-1, relevant organisations were contacted either via e-mail or directly for comment and were sent a Letter of Notification and a Background Information Document (BID). In addition, surrounding landowners and additional I&APs were identified and notified, the details of which can be found in [APPENDIX 1](#).

Table 9-1: Stakeholder and Organisational Database

STAKEHOLDERS
Department of Environmental Affairs: Competent Authority
Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
Department of Water & Sanitation (DWS) (Eastern Cape)
Department of Mineral Resources (DMR) (Eastern Cape)
Department of Agriculture Forestry & Fisheries (DAFF)

Department of Energy (DoE)
Eskom
Eskom: Renewable Energy
Eskom: Land & Rights Section
Eastern Cape Parks and Tourism Agency (ECPTA): Thomas Baines Nature Reserve
SALGA Eastern Cape
Eastern Cape Provincial Heritage Resources Authority (ECPHRA)
South African Heritage Resource Authority (SAHRA)
Makana Local Municipality (LM)
Sarah Baartman District Municipality (DM)
Makana LM Ward 9
Makana LM Ward 11
Makana LM Ward 13
Grahamstown Business Forum
Telkom
Sentech
Vodacom
MTN
Cell C
Civil Aviation Authority (CAA)
Air Traffic and Navigation Services (ATNS)
Roads (SANRAL/Public Works)
BirdLife South Africa
BirdLife South Africa: Birds and Renewable Energy Manager
BirdLife South Africa: Policy & Advocacy Manager
Endangered Wildlife Trust: CEO
Endangered Wildlife Trust: Head of Conservation Science
Endangered Wildlife Trust: Wildlife & Energy Programme
WESSA EC Regional Representative
Wildlife Ranching RSA
East Cape Game Management Association
INDALO

9.1.4 SURROUNDING AND AFFECTED LANDOWNERS

The residents of the surrounding areas were provided with an initial letter of introduction to the project and a BID during the site meetings. These documents included the contact details of the EAP in order for the landowners to register themselves and/or submit their comments on the proposed development.

9.1.5 REGISTERED I&APS

Other than I&APs initially identified and any persons requesting to be registered as I&APs have been and will continue to be included in the I&AP database (Appendix 1).

9.1.6 THE PUBLIC PARTICIPATION PROCESS FOLLOWED AND TO BE FOLLOWED

INCLUDES:

Release of the Draft Scoping Report for Authority, Stakeholder and Public review.

The Draft Scoping Report will be available for public review from the 14th June 2018 to 19th July 2018 (30 days).

- (a)** Hard copies of the Draft Scoping Report were made available at: Grahamstown Public Library
- (b)** Electronic copies are available on the CES website (www.cesnet.co.za)

Release of the Draft Environmental Impact Assessment Report for Authority, Stakeholder and Public review

The Draft EIR will be made available for public review: anticipated dates – October to November (30 days)

- (a)** Hard copies of the Draft Environmental Impact Assessment Report will be available at: Grahamstown Public Library.
- (b)** Electronic copies will be made available on the CES website (www.cesnet.co.za).

The PPP section of the EIR process will also include public meetings the date, venue and time of which will be communicated to all Stakeholders and I&APs

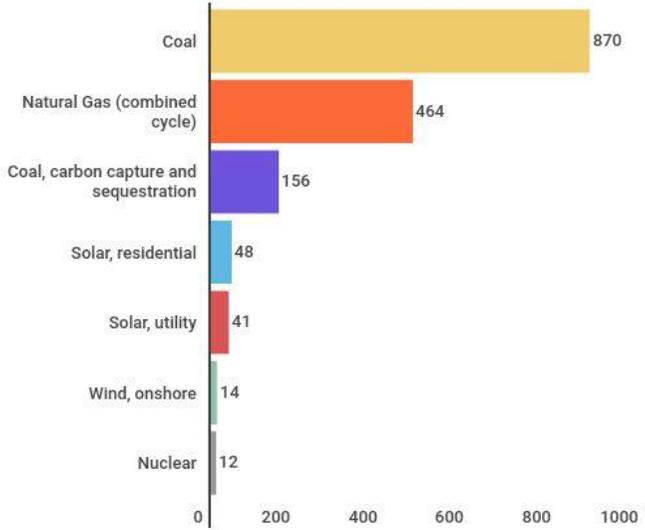
9.2 ISSUES & RESPONSE TRAIL

The table (Table 9-2) below summarises the main issues raised through group meetings and during the public review period, and includes the EAP responses to these issues. These tables will be updated throughout the process from inception until submission of the Final EIR to the Competent Authority (DEA).

Table 9-2: Issues and Response Trail.

** Please note that this table will be updated throughout the Scoping and EIA Processes.*

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE				
<p>As per Appendix A (13.5), a Comment and Objection was received from Mr Andre van der Spuy on behalf of various clients. The letter raises the following issues: Points 1-3 present the reviewer and the purpose of the Comment and Objection letter, as per Appendix A (13.5)</p> <p>4. From brief review of the DSR it is evident that the EAP is immediately engaged in an Applicant-favored approach in which every opportunity is used to punt the proposed AWEF and wind farms in general, even using outright fabrication if and where possible. For instance, a ludicrous claim is made (DSR, Sect. 6.5.4) to the effect that operating wind farms in South Africa are responsible for offsetting 3.75 million tons of CO₂ emissions. The exact source of these 3.75M offset tons is not identified – this is because there is none. Basic scientific principle dictates that wind farms are net producers of CO₂ emissions and especially when considered in the context of all the necessary components required to make them functional (i.e. <35% efficient), such as the necessary 100% back-up fossil fuel energy, they are in true fact mass producers of carbon emissions. This fact is borne out in the real world examples where high penetration of renewable energy has been undertaken such as Germany’s “Energiewende” which has not halted the continued increase of carbon emissions (but has resulted in some of the most expensive electricity in the world). In other instances references and facts are “cherry-picked” by the EAP to suit the argument of the EAP and to advance (unfairly) the interests of the Applicant. This is done at the expense of the environment, the local affected community and our clients. This objection and comment will point out just some examples during the course of its representation.</p>	<p>Mr Andre van der Spuy</p> <p>ANDRE VAN DER SPUY ENVIRONMENTAL CONSULTANTS</p> <p>19/07/2019</p> <p>[SUBMITTED ON BEHALF OF THE FOLLOWING CLIENTS: Mr Angus Sholto-Douglas; Mr Nolan Sparg; Mr Colin Coetzee; Mr Terry Stewart; Mr Aiden Sparrow; Mr Basil Peinke; Ms Bevan Peinke; Mr Sean van Zyl; Mr Hennie Brink; Mr Charles Timm; Mr Kevin Bates; Mr Lionel Wicks; Longwood Trust; Mr Greg Dixon; Mr Murray Crous; Mr Nico Fick; Mr Peter Wood; and Mr Rudi Venter]</p>	<p>4. The document from which these figures have been derived is referenced in the DSR as IPP Quarterly Report, September 2016. This document is freely available on the IPP website at: https://www.ipp-projects.co.za/Publications</p> <p>Renewable Energy as a means of mitigating climate change is of national and provincial importance as discussed and referenced in Chapter 3 of the DRS and FSR.</p> <p>Studies which have been undertaken by highly qualified energy scientists would dispute the fact that wind farms are net producers of CO₂ emissions. A literature review undertaken by Garvin A. Heath, a senior scientist at NREL, and colleagues concluded (after reviewing the scientific literature) that wind energy produces about 11g of CO₂ per kilowatt-hour of electricity generated, compared to approximately 980g CO₂/kWh for coal and roughly 465g CO₂/kWh for natural gas.</p> <p>“It’s true that wind power isn’t a zero emission energy source. Greenhouse gas emissions are produced when wind turbines are manufactured, built, maintained and decommissioned. But the “life cycle greenhouse gas emissions from solar, wind, and nuclear technologies are considerably lower and less variable than emissions from technologies powered by combustion-based natural gas and coal,” says the NREL. (Factcheck.org, 2018).</p> <table border="1"> <thead> <tr> <th>Energy</th> <th>Carbon Footprint (g CO₂/kWh)</th> </tr> </thead> <tbody> <tr> <td>Wind</td> <td>11</td> </tr> </tbody> </table>	Energy	Carbon Footprint (g CO ₂ /kWh)	Wind	11
Energy	Carbon Footprint (g CO ₂ /kWh)					
Wind	11					

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE																		
		<table border="1"> <tr><td>Coal</td><td>980</td></tr> <tr><td>Natural gas</td><td>465</td></tr> <tr><td>Nuclear</td><td>12</td></tr> <tr><td>Solar</td><td>14 – 45</td></tr> <tr><td>Hydro</td><td>7</td></tr> <tr><td>Ocean</td><td>8</td></tr> <tr><td>Geothermal</td><td>11.3 – 47</td></tr> <tr><td>Biomass</td><td>43</td></tr> <tr><td colspan="2">Source: Research by NREL and BNL</td></tr> </table>	Coal	980	Natural gas	465	Nuclear	12	Solar	14 – 45	Hydro	7	Ocean	8	Geothermal	11.3 – 47	Biomass	43	Source: Research by NREL and BNL	
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		<p>Estimated Carbon Footprints</p>  <table border="1"> <thead> <tr> <th>Energy Source</th> <th>Estimated Carbon Footprint (grams of CO2 per kilowatt)</th> </tr> </thead> <tbody> <tr><td>Coal</td><td>870</td></tr> <tr><td>Natural Gas (combined cycle)</td><td>464</td></tr> <tr><td>Coal, carbon capture and sequestration</td><td>156</td></tr> <tr><td>Solar, residential</td><td>48</td></tr> <tr><td>Solar, utility</td><td>41</td></tr> <tr><td>Wind, onshore</td><td>14</td></tr> <tr><td>Nuclear</td><td>12</td></tr> </tbody> </table> <p>grams of CO2 per kilowatt of electricity produced</p> <p>Source: Joshua D. Rhodes, University of Texas at Austin, Energy Institute, 2017</p> <p>This article has presented a methodology for determining the greenhouse gas (GHG) emissions displacement of wind power.</p>	Energy Source	Estimated Carbon Footprint (grams of CO2 per kilowatt)	Coal	870	Natural Gas (combined cycle)	464	Coal, carbon capture and sequestration	156	Solar, residential	48	Solar, utility	41	Wind, onshore	14	Nuclear	12		
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STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>5. Under Section 3 of the DSR extensive motivation of renewable energy and wind farms is undertaken by the EAP using the claimed threat of climate change as a main source of justification.</p>		<p>Based on operational system data, it avoids the limitations of similar analyses based on system models and does not impose any assumptions about dispatch. It also takes into account the efficiency penalties of operating conventional thermal generation at part load. This can be applied to any system over any time-frame to find more accurate estimates to be used in carbon payback and net emissions reduction calculations, which are required by renewable energy developers, planners and policy makers.</p> <p>This methodology was applied to the electricity system in Great Britain, analysing historical metered and market data from 2009 to 2014. For most years the marginal emissions displacement was significantly higher (21% in 2010) than the system-average emissions published by the Department for Energy and Climate Change, most commonly applied in carbon payback and emissions reduction calculations (Ricardo-AEA, 2016). This suggests that emissions displacement has historically been underestimated and published carbon payback periods are generally pessimistic, which is of particular significance for carbon abatement cost estimates and for the viability of wind farms built on peatlands.</p> <p>Finally, this work also found that the marginal emissions displacement of wind is very similar to the marginal emissions of changes in demand, demonstrating that wind power is almost as technically effective as demand-reduction interventions at reducing emissions from generation. This supports policies that encourage increasing wind capacity as a means of reducing GHG emissions.</p> <p><u>Reference:</u> <i>Thomson, R. C., Harrison, G.P. & Chick, J.P. (2017) Marginal greenhouse gas emissions displacement of wind power in Great Britain. Energy Policy Volume 101, February 2017, Pages 201-210.</i></p> <p>5. The EAP, Dr Alan Carter, is a member of Environmental Assessment Practitioners Association of South Africa (EAPASA); South African Council for Natural Scientific Professions (SACNASP); and</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>The EAP clearly is not a climate scientist and has no understanding of this very complex and often misunderstood field. The EAP rather relies on the grossly superficial and populist understanding of climate change and its associated myths, one of which regards wind farms and industrial-scale renewable energy projects as a solution to the problem. In response is provided the comment of a genuine expert, Dr. John Ledger (Associate Prof. of Energy and Environment; pers. com.);</p> <p><i>“At the heart of the problem is the wishful notion that renewable energy can somehow save the planet from ‘catastrophic anthropogenic global warming’. At a local level, the notion that South Africa should involve itself in this futile gesture is laughable, given that our industries contribute around 1% of global CO₂ emissions. The very notion of CAGW is itself a farce, a man-made pseudo-religious fabrication easily discredited by rational analysis.”</i></p> <p>But Dr Ledger does not stop there in his professional comment on wind energy as a means by which to combat climate change, he also states;</p> <p><i>“Electricity from wind is unscheduled, unreliable and at best only available for 30% of the time. South Africa contributes around 1% of global industrial Carbon Dioxide emissions. Whatever we do in this country to reduce our emissions will have a miniscule, unnoticeable impact on the temperature of the planet, even if you believe the ridiculous notion that a gas that constitutes 0.04% of the atmosphere could be a magical knob that can turn global temperatures up or down.”</i></p> <p>The EAP, Dr. Carter, is a botanist and accountant. He is best advised to stick to his trained discipline (which incidentally excludes also practicing as an EAP) instead of reinventing himself as a climate specialist, an EAP and even a visual impact specialist. It is noted that in fact Ms. R. Evans and Ms. C. Evans are more properly qualified than Dr, Carter to act as the EAP.</p>		<p>International Association for Impact Assessment (IAIA) under which he has taken oaths to undertake his duties as an EAP as per their stringent criteria. Dr Alan Carter has vast climate change experience, his experience includes but is not limited to:</p> <ul style="list-style-type: none"> ▪ Providing specialist peer review services for the National Department of Environmental Affairs (DEA) relating to climate change impact assessments for large infrastructure projects (2017-2018). ▪ Conducting a climate change impact assessment for a proposed coal-fired power station in Africa (2017-2018). ▪ Participating in the development of a web-based Monitoring & Evaluation (M&E) system for climate change Mitigation and Adaptation in South Africa for the National DEA (2015-2016). ▪ Managing the project for the development of a Climate Change Strategy for the Buffalo City Metro Municipality (2013). ▪ Managing projects to develop climate change strategies for two district municipalities in the Eastern Cape Province (2011). ▪ Conducting specialist carbon stock and greenhouse gas emissions impact and life cycle assessment as part of the Environmental, Social and Health Impact Assessment for a proposed sugarcane to ethanol project in Sierra Leone (2009 - 2010) and a proposed Jatropa bio-diesel project in Mozambique (2009 - 2010). ▪ Managing the project to develop the Eastern Cape Province Climate Change Strategy (2010). ▪ Managing the project to develop a Transnet National Ports Authority Climate Change Risk Strategy (2009) ▪ Participating in the project to develop a Renewable Energy roadmap for the East London Industrial Development Zone (ELIDZ) (2013). ▪ Participating in a project for the East London Industrial Development Zone (ELIDZ) and Eastern Cape Government to prepare a Renewable Energy Strategy (2009). ▪ Contributed to the development of Arthur Andersen LLP’s International Climate Change and Emissions Trading Services (2001).

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
		<ul style="list-style-type: none"> ▪ Conducted carbon credit (Clean Development Mechanism - CDM) feasibility assessment for a variety of renewable energy projects ranging from biogas to solar PV. ▪ Participated in the preparation of CDM applications for two solar PV projects in the Eastern Cape. <p>In terms of Dr Alan Carter’s suitability as an EAP for a renewable energy facility, the following list of relevant experience refers. Dr Alan Carter has been the EAP on numerous renewable energy EIAs within the Eastern Cape (and neighbouring provinces), examples include:</p> <ul style="list-style-type: none"> ▪ Chaba I Wind Energy Facility (EC); ▪ Great Kei Wind Energy Facility (EC); ▪ Dassiesridge Wind Energy Facility (EC); ▪ Scarlet Ibis Wind Energy Facility (EC); ▪ Lushington Park 100 MW Wind Energy Facility (EC); ▪ Thomas River Renewable Energy Facility (EC); ▪ Qunu Wind and Solar Facility (EC); ▪ Qumbu Wind and Solar Facility (EC); ▪ Nqamakwe Wind and Solar Facility (EC); ▪ Ncora Wind and Solar Facility (EC); ▪ Peddie Wind and Solar Facility (EC); ▪ Thezi-Langa 50MW Solar PV Facility (EC); ▪ Langa 100MW Solar PV Facility (EC); ▪ Gehrlicher Ikwhezi 10 MW Solar PV Facility (EC); ▪ Umsobomvu Wind Energy Facility (EC and NC); ▪ Boulders Wind Energy Facility (WC); and ▪ Waaihoek Wind Energy Facility (KZN). <p>As per the above list of relevant experience, Mr van der Spuy’s comments regarding the qualifications and experience of Dr Alan Carter as an EAP are regarded as subjective, unsubstantiated, opinion-based and defamatory. CES will not be drawn into Mr van der Spuy’s personal defamatory statements of its employees and will leave DEA to determine whether or not members of this team are suitably qualified to undertake this assessment. All comments</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>6. Notwithstanding the above, it is also noted in the DSR that the EAP, Dr. Carter, intends to conduct a climate impact assessment himself (as a so-called "General Impact"). This will be totally unacceptable since the EAP clearly knows very little about the science and discipline of so-called climate change and is certainly unqualified to undertake the necessary impact assessment. Instead a proper climate scientist will be required to be appointed. Gross, unsubstantiated and incorrect assumptions regarding the benefits of wind farms in terms of climate change mitigation will be opposed by a proper expert, if necessary.</p> <p>7. The Plan of Study of Impact Assessment must be expanded to include a proper professional climate impact assessment. We reserve our right to comment on the terms of this required expert study given the alarming level of incompetence and bias revealed in the DSR.</p> <p>8. The climate impact assessment will have to take into account the significant carbon sequestration value of our clients properties in so far as these are managed by them in order to achieve the most natural state possible (some are registered Protected Areas) and which is arguably of great value in the carbon cycle. Should the clients operations be damaged such benefits may ultimately be</p>		<p>regarding the Draft Scoping Report and proposed EIR Scope of Works will be addressed.</p> <p>The EAP finds Mr van der Spuy's reference to Dr Ledger's article in contradiction to some of the points raised regarding Climate Change (such as points 7 and 8 of this letter). The EAP does not agree that an entire Climate Change specialist report is necessary, based on the fact that the positive contribution of wind as an alternative to coal powered energy is a single impact (based on available South African data) in the greater scheme of over 50 impacts that are likely to be documented in the EIR (estimate based on previous WEF experience) across a range of specialist fields (as per section 10.3 of this report).</p> <p>6. Please note that the DSR does not state that Dr Alan Carter will be conducting a Climate Impact Assessment. The contribution of wind as an alternative to coal energy is a single impact which will be listed as a "general impact". It is the opinion of the EAP that further investigations into the concept of climate change are not relevant to the proposed study, hence no recommendation to this effect has been made under section 10.3 (specialist studies) of the report.</p> <p>7. As stated above, due to the fact that wind energy is considered a positive alternative to coal power energy (and therefore a positive contributor to climate change mitigation), a Climate Change Impact Assessment has not been included as a recommended study in the proposed specialist studies listed in section 10.3 of this report.</p> <p>8. It must be noted, that this statement is in contradiction to point 5 of Mr van der Spuy's letter which references a statement by Dr Ledger saying that <i>"Whatever we do in this country to reduce our emissions will have a miniscule, unnoticeable impact on the temperature of the planet, even if you believe the ridiculous notion that a gas that constitutes 0.04% of the atmosphere could be a magical knob that</i></p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>lost and any resultant carbon emissions would need to be attributed to the account of the wind farm.</p>		<p><i>can turn global temperatures up or down</i>". Investigating the carbon sequestration on Mr van der Spuy's clients' properties would then essentially be of limited value as per the conclusion referenced in another of Dr Ledger's statements (point 5 of Mr van der Spuy's letter): <i>"At the heart of the problem is the wishful notion that renewable energy can somehow save the planet from 'catastrophic anthropogenic global warming'. At a local level, the notion that South Africa should involve itself in this futile gesture is laughable, given that our industries contribute around 1% of global CO₂ emissions. The very notion of CAGW is itself a farce, a man-made pseudo-religious fabrication easily discredited by rational analysis."</i></p>
<p>9. The DSR is required to be an objective and rational document – however the proposed AWEF DSR is not. In fact the EAP is required to take an oath or affirmation in regard to the <i>"correctness of the information provided in the report"</i> (EIA Regulations; Appendix 2(1)(i)(i)). Tellingly, the affirmation under Chapter 12 of the DSR is vague and unspecific in this regard and none of the sworn items address the <i>"correctness of the information"</i>. The EAP has capitalized on this <i>"oversight"</i>.</p>		<p>9. Please note that the EAP has signed an EAP affirmation (as per the DEA application template). This was submitted with the application form for the proposed Albany WEF (a copy of the fully scanned application form is available on the CES website). This additional affirmation has been included so that each contributor of the report can undertake this affirmation too. Each final report (Scoping, EIR and Specialist Reports) will include the official departmental EAP declaration form and Specialist declaration forms as per the legislated requirements.</p> <p>As previously mentioned, the EAP, Dr Alan Carter, is a member of Environmental Assessment Practitioners Association of South Africa (EAPASA); South African Council for Natural Scientific Professions (SACNASP); and International Association for Impact Assessment (IAIA) all of which impose of conduct and ethical behaviour.</p>
<p>10. Under Appendix 2 of the EIA Regulations, which deals with the required purpose and contents of a scoping report, several requirements stipulate the need for the (D)SR to address the <i>"level of risk"</i> associated with all alternatives and also <i>"residual risk"</i> (EIA Regulations, Appendix 2, (1)(g)(viii) and (1)(h)(ix)). Yet nowhere in the DSR is the significant <i>"level of risk"</i> that will be levied against our clients interests and operations even mentioned, despite their obvious location and the very well known local and regional concerns around impacts of wind farms on game reserves and game farm operations. It is likely that the failure of the EAP to identify this obvious risk is intentional given</p>		<p>10. The purpose of the Draft Scoping Report public review period is to give all Stakeholders and I&APs the opportunity to review the proposed approach and to raise any concerns which they may have from a personal (visual, financial, etc.) perspective. These issues are then incorporated into the proposed scope of work for the Environmental (and Social) Impact Assessment Phase.</p> <p>Annexure A of Mr van der Spuy's letter includes a list of clients who have been added to the I&AP database. The clients' properties will be assessed by both the Socio-Economic and Visual specialists (as</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>its high significance, and consequences, and the observed propensity of the EAP to favour the Applicant's interests. In this regard it is quite clear that the (poor) choice of preferred site for the proposed AWEF has not considered at all such risk, or perhaps it has but has then proceeded anyway upon the basis of overriding support that will be forthcoming from the Competent Authority whose political motives have been proven to supersede its legal obligation to protect the national heritage in matters of other wind farm applications. Whatever the case, the DSR has not even identified this large risk (to our clients). In this regard the EAP will be well advised to provide the Competent Authority with a map of our clients' properties and operations (and those of others such as the Great Fish River Reserve) in order to provide the DEA with a proper understanding of the high level of risk of damage given the close proximity of our clients.</p> <p>11. All impact assessments for this application are advised to assess the specific impacts upon each of our individual client operations. This is very important. Sufficient provision will have to be made by the Applicant, participating landowners, funding institutions and other beneficiaries for compensation of residual impacts and damages that may be suffered by each of the clients. It is pointed out that compensation is an accepted and necessary form of "off-setting" which is a low order mitigation measure within the mitigation hierarchy. The EAP and the Competent Authority must apply the mitigation hierarchy to its full extent which includes off-setting/ compensation.</p>		<p>per the updated ToR of specialist studies in section 10.3 of this report).</p> <p>At the time of submission, Mr van der Spuy had not provided a complete list of contact details for the clients listed in Annexure A. CES requested this information on Monday, 22nd July. In order to determine the property location, industry, etc. of each client a table of questions will be distributed. A map detailing where the various properties are will be included in the EIR phase (on condition that all client contact details are provided in a timeous manner; and assuming all clients are willing to provide the requested details). The location and assessment of all affected clients, listed in Annexure A, will form part of the EIA Phase of this process.</p> <p>11. As stated above. A questionnaire will be distributed to all clients listed in Annexure A of Mr van der Spuy's letter. This will be the first step in the assessment of these properties and the associated businesses. The conditions which apply to point 11 are detailed in point 10 above (all client contact details must be provided in a timeous manner, and assuming all clients are willing to respond to the questions posed to them by the relevant specialists).</p>
<p>12. The DSR under Section 6 proclaims hugely exaggerated employment benefits associated with WEFs but these are all general and not based on any real case examples. Another unreferenced and false general statement of the DSR is that, "(i)n general the local employment component of the renewable energy projects fares much better than originally anticipated." Clearly the EAP is not concerned about the implications of breaching his oath. Some true facts regarding real employment by South African wind farms are as follows: - Van Stadens WEF, Eastern Cape : 1 permanent employee</p>		<p>12. The data presented under Section 6 of the DSR is based on <i>Liziwe McDaid (2016) Renewable Energy Independent Power Producer Procurement Programme Review 2016: a critique of process of implementation of socio-economic benefits including job creation.</i> The socio-economic data presented in the DSR has been extracted from numerous studies, as referenced. Mr van der Spuy's alternative data is a self-referenced observation. The Socio-economic Impact Assessment will include an assessment of the jobs associated with the proposed WEF as well as a comparative assessment of data</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>- Hopefield WEF, Western Cape : 3 permanent employees (Source: personal investigation by the author) These abysmal employment figures are sufficient justification alone to shelve the proposed AWEF which will be no different.</p> <p>13. The term “job years”, one recently adopted by proponents of wind farms in an effort to boost and misrepresent the poor real employment characteristics of wind farms, is used by the EAP in the DSR (and simply confirms the EAP’s bias). The EAP has neglected to explain or qualify the term since it is it certainly not the equivalent of real “jobs”. In fact, it is an exponentially poorer denotation which is of almost no real value. Its use is a mere matter of (convenient) interpretation by the user of the term (in this instance, the EAP). The EAP will need to explain and quantify this term in the next version of the DSR.</p>		<p>gathered for operational WEFs. This will take place during the EIA phase.</p> <p>13. The term “job years” is not a new term, and has been in use in the construction and engineering industry for decades. For Mr van der Spuy to attribute its use as “confirmation of EAP bias” is completely unsubstantiated, please see numerous energy related references to “job years” below. The Socio-economic Impact Assessment will include an assessment of the jobs associated with the proposed WEF as well as a comparative assessment of data gathered for operational WEFs. This will take place during the EIA phase.</p> <p>THE TERM JOB YEARS IS REFERRED TO IN NUMEROUS ENERGY-RELATED MATERIAL</p> <p>SA wind industry: standardised metric to assess energy sector employment (ESI Africa: Africa’s Power Journal, July 2018): “...In keeping with this trend, the Minister of Energy applies the contemporary metrics ‘job-years’ and ‘full-time equivalent’, rather than the old-fashioned and vague metric ‘jobs’, when referring to the employment opportunities being created by the Renewable Energy sector. As recently explained in Parliament by Minister Radebe, a ‘job year’ is equivalent to a full-time employment opportunity for one person for one year.”</p> <p>Renewable Energy: Where are the jobs? A critique of the government’s socio-economic programme (2016): Page 18: “In the international literature and in government job related data regarding renewable energy, job creation is beginning to be standardised in job-years. The term job-year refers to one person’s employment for one year. For example, 40 job years could mean two people employed for twenty years each, or four people employed for 10 years each.”</p>

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		<p>SAWEA Briefing paper: An overview of the employment implications of the South African power sector transition (July 2018): Page 5: “A job could be for a day, a month, a year or more. Internationally and increasingly in South Africa, studies are starting to be formalized around the job year. A job or employment could therefore comprise any number of, or fraction of job years. The concept of ‘Full Time Equivalent’ (FTE) is typically used to qualify absolute employment metrics.”</p> <p>Future skills and job creation through renewable energy in South Africa: Assessing the co-benefits of decarbonising the power sector (March 2019): Pages 7 and 12: “...The model was modified for the South African context. This study defines a ‘job’ or ‘employment opportunity’ in terms of full-time equivalent (FTE) units per annum. This approach accounts for part-time and full-time workers in a comparable way. One job is equivalent to one job year, with the total number of jobs indicating the total number of people employed during a specific year.” “...head count jobs (number of people employed) and job years (total number of jobs multiplied by the (maximum) number of years that those jobs are required) created according to the value chain phase for a typical 86 MW solar PV project.”</p> <p>Department of Energy (DoE): Integrated Energy Plan (Annexure B: Macroeconomic Assumptions):Pages 28 and 29: “Once both direct and supplier jobs have been calculated, it was necessary to normalise across technologies for construction build times, as the different technologies have differing lead time, the construction jobs have been represented as job years per GW of the technology installed.” “Direct jobs-: these are the direct employees responsible for building or running the power plants (or primary energy extraction). The spend in the different value pools is deemed to be direct jobs. Using a standard salary range for each of the different jobs in the different value pools the full number of job years that the total spend per plant would create is calculated.”</p> <p>REIPPPP Focus on Eastern Cape: At a glance (June 2015): Page 11</p>

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<p>14. The DSR also wastes no energy in lauding the proclaimed community trust benefits that have allegedly been contributed by WEFs. Contrary to this, Annexure B reveals the true experience of deceit of renewable energy companies and associated “hanger-one’s” in such “community” programmes. In the DSR the EAP has once again presented his selected and Applicant-favoured general view only. No detail specific to the proposed AWEF is provided.</p>		<p>“Note 5. Employment / Job creation measured in job years (equivalent of a full time employment opportunity for one person for one year).” Contract definitions and terminology (Page A4): “Job years. Employment / Job creation is reported in job years i.e. the equivalent of a full time employment opportunity for one person for one year).”</p> <p>14. The DSR states the following regarding community trusts: “A community trust is a mechanism established for the community to hold ownership of projects, to have control of their future, to make decisions about their needs and to have some resources to implement their decisions. The aim of the Trust is to ensure that a portion of the incomes generated is directed towards local economic development of the affected communities. At this stage 2.5 to 5% equity should be held by communities, yet there are no explicit requirements on how these contributions should be spent. In round three of the bidding windows some projects have however structured 40% local ownership in their projects” (Wlokas, 2015).</p> <p>“The way in which the projects are financed is such that the financing debts must be repaid before money is available for community spend. Communities do not have the capital to invest in renewable energy projects and the community trusts are financed through loans from financial institutions. In general, for each of the community trusts, the loan must be repaid before income flows to the community, although there could be a small dividend that flows to the community earlier on already.”</p> <p>This paragraph, as referenced, is an academically referenced study. Other relevant studies include Holle L. Wlokas, Peter Westoby & Sue Soal (2017) Learning from the literature on community development for the implementation of community renewables in South Africa published in <i>Journal of Energy in Southern Africa</i>.</p> <p>The Socio-economic Impact Assessment will include an assessment of the community trust information proposed for the Albany WEF. This will take place during the EIA phase.</p>

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<p>15. It is noted that a number of CES employees are involved in the “preparation” and management of this DSR yet only Dr Carter is the EAP who is bound in terms of the NEMA. Ms. R. Evans and Ms C. Evans are thus free to act in the interests of the CES or Applicant or any other party having not been bound under oath or affirmation yet they play a significant role in the process and preparation of the DSR, including decision making on matters of fundamental importance to our clients. This situation is unacceptable and non-compliant under NEMA.</p>		<p>15. Please note that the EAP has signed an EAP affirmation (as per the DEA application template). This was submitted with the application form for the proposed Albany WEF (a copy of the fully scanned application form is available on the CES website). This additional affirmation has been included so that each contributor of the report can undertake this affirmation too. Each final report (Scoping, EIR and Specialist Reports) will include the official departmental EAP declaration form and Specialist declaration forms as per the legislative requirements.</p>
<p>16. Under Table 8-3 in which potential impacts associated with the proposed AWEF are listed and assigned preliminary impact ratings there is not listed any of the obvious and serious potential impacts of (i) visual impact of the huge turbines and (ii) impact of their obligatory night-lighting. These are obvious and common potential impacts associated with ALL WEFs and are invariably highly negative and beyond mitigation. Given the observed tendencies of the EAP to consistently favour the interests of the Applicant in matters of interpretation and practice the omissions are accordingly explained (but unacceptable and non-compliant with inter alia EIA regulations, Appendix 2, (1)(g)(v) and (vii)1.</p>		<p>16. Tables 8-3 (planning & design phase), 8-4 (construction phase), 8-5 (operational phase) and 8-6 (decommissioning phase) all contain proposed impacts related to the Albany WEF. Table 8-2 can be used as a guide to show Mr van der Spuy where relevant impacts have been identified. The following impacts regarding visual impact and night light have been extracted from Tables 8-3 to 8-6 <i>verbatim</i> (issue and impact extracted). These impacts, as with all impacts, are rated on a preliminary basis and require input from the specialists, as stated in the DSR.</p> <p>Table 8-3, Planning & Design impact 11 states the following: Issue: <i>Shadow Flicker</i> Impact: <i>During planning and design the failure to take shadow flicker into account may have negative health impacts on surrounding landowners. The movement of the turbine blades across the direction of sunlight causes a phenomenon called shadow flicker, which can result in health problems if people are regularly exposed to it.</i></p> <p>Table 8-3, Planning & Design impact 19 states the following: Issue: <i>Change in scenery in the WEF area</i> Impact: <i>During planning and design, incorrect placement of turbines in visually sensitive areas may negatively impact individuals’ perceptions in terms of sense of place.</i></p> <p>Table 8-4, Construction impact 49 states the following Issue: <i>Visual intrusion of construction equipment</i></p>

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		<p>Impact: <i>During the construction phase the equipment needed to erect the wind turbines may affect the 'sense of place' of local residents.</i></p> <p>Table 8-5, Operational impact 2 states the following: Issue: <i>Lighting</i> Impact: <i>During operations the facility may be lit at night which could have adverse impacts on the landscape character and sense of place due to long-term visibility of land.</i></p> <p>Table 8-5, Operational impact 22 states the following: Issue: <i>The effect of the WEF of the local sense of place</i> Impact: <i>During operations the visibility of the WEF from Makhanda, surrounding game farms, surrounding farms and informal settlement influencing the local people's sense of place.</i></p> <p>Table 8-6, Decommissioning impact 15 states the following: Issue: <i>Visual intrusion of construction equipment</i> Impact: <i>During decommissioning the visual intrusion of the equipment needed to dismantle the turbines may affect the local residents.</i></p> <p>Again, CES will not entertain Mr van der Spuy's unsubstantiated and defamatory remarks implying that an oversight on his part is somehow proof of his emotive and personalised remarks that "the EAP constantly favours the interests of the Applicant".</p>
<p>17. Another crucial and unacceptable failing of the impact assessment methodology (and interpretation) presented in the DSR is the failure to define, quantitatively and objectively, what level of impact (singularly and cumulatively) will be considered unacceptable. In other words what does the EAP consider to be a so-called "fatal flaw"? The EAP should define this in the next DSR version on an objective basis and according to a clear set of criteria that can be applied and reviewed by all.</p>		<p>17. The impact rating methodology, which will be used by all specialists and the EAP, as per section 10.2 "Impacts Assessment Methodology" of this report. This impacts rating methodology is consistent with industry standards.</p>
<p>18. It is noted with that CES intends to deploy various of its employees as specialists for the: - Agricultural and soils impact assessment</p>		<p>18. CES will not be drawn into Mr van der Spuy's personal defamatory statements of its employees and their qualifications. Each specialist report will include the full list of team members, CV's and specialist</p>

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<p>- The ecological impact assessment - The visual impact assessment</p> <p>This author has had extensive experience in review of CES “specialist” impact assessments and is yet to review a single one which has any real credibility (despite the unwarranted approval of same by the DEA). All of them have shown an overt propensity to make findings in favour of the Applicant irrespective of the true facts and the consequences for the environment and affected local communities.</p> <p>Section 1 of the EIA Regulations defines a “specialist” as follows: “means a person that is <u>generally recognised within the scientific community</u> as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socioeconomic studies”. (Underlining supplied)</p> <p>In this author’s almost 30 years of environmental consulting I have never heard of Dr. A. Carter or Mr. M. Johnson as VIA specialists who are “generally recognized within the scientific community”. They may well be recognized, and indeed favored, within the wind energy development industry for obvious reasons. Likewise Ms. R. Evans and others of CES in their purported roles as specialist impact assessors.</p> <p>19. In terms of the intended ecological impact assessment it is clear that a gross underestimation is being accorded to the ecology and biodiversity of the receiving environment by expecting to cover these diverse fields within a single broad ecological impact assessment. This is inappropriate. It will be necessary to rather appoint proper specialists to each of the different faunal groups (for instance, at least an invertebrate specialist and a vertebrate specialist). Separate bird and bat specialists are already accounted for.</p>		<p>declarations, as per the regulations. The suitability of the specialists will be determined by the DEA. It is evident from the tone of Mr van der Spuy’s remarks that he is using this platform to try to discredit the work that CES has undertaken in this country (and specifically this province). There are regulatory bodies which can be approached to have consultants held to task which are more suitable avenues for Mr van der Spuy’s claims of evidence of CES’s “overt propensity to make findings in favour of the Applicant irrespective of the true facts and the consequences for the environment and affected local communities”. These unsubstantiated remarks do not relate to the content of the DSR. Mr van der Spuy’s affirmation or recognition of specialists does not qualify or disqualify them from their respective fields.</p> <p>19. The Ecological Impact Assessment field work has been ongoing since 2017. From a faunal perspective site visits have been conducted by Mr Craig Sholto-Douglas (terrestrial faunal specialist) and Mr Luke Kemp (reptilian and amphibian specialist). As per the Ecological Specialist Study scope of work, in section 10.3, it is clear that the Ecological Study has and will continue to include assessments of both the faunal and floral components of the receiving environment.</p>
<p>20. From the available information it is obvious that the chosen location for the proposed AWEF is unsuitable given the high biodiversity value attributed to most of the site, having Terrestrial and Aquatic CBA 1 and 2 statuses. Such habitats are</p>		<p>20. The Eastern Cape Biodiversity Conservation Plan (ECBCP) has not been formally amended since 2007. All properties which form part of the proposed Albany WEF have been, and are continuing to be assessed by various specialists. The specialists will inform the site</p>

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<p>designated as having high biodiversity value and the associated land use recommendations are that they should respectively (CBA1 and CBA 2) be left over for land uses that promote preserve (and restore if necessary) their “natural” and “near-natural” ecological characters. Large scale industrial development such as the proposed AWEF is as far removed a land use as can be from those contemplated in the relevant biodiversity plans. The CBA status of the site is a clear warning that is intended to direct just the sort of development as the proposed AWEF away from such sensitive sites. The Applicant and EAP have failed to heed this warning and the EAP shows every intent on manufacturing convenient arguments designed to justify violation of the sensitive environment. It is beyond dispute that the proposed AWEF will constitute unsustainable development on this preferred location.</p>		<p>sensitivity based on a combination of spatial, literature and site investigation data. Based on initial site visits much of the area listed as CBA1 has been transformed. The various specialist studies will inform the land use changes which have occurred on the proposed site.</p>
<p>21. A fundamental failure of the DRS and the Plan of Study of Scoping is its failing to intend to consider all of the impacts of the proposed AWEF. Give the legal requirement of the proposed AWEF to have to consider all of the potential impacts associated with its development it will be necessary for the proposed AWEF EIA to include all of the potential impacts of its dependant components and auxiliary functions, such as the powerline and the back-up (probably fossil fuel) power facilities. The DSR advises that the powerline component will be the subject of a separate environmental application. If this is so, then the current application will still need to consider the findings of the powerline EIA process as well, even if this requires that its decision-making process is placed on hold until such time as the powerline EIA findings are known and can be considered. Likewise the impacts of the proposed AWEF on existing power supply facilities, Eskom and the distribution network must be assessed and included in the overall decision-making process. Failure to do so will amount to incremental development which is illegal.</p>		<p>21. The specialist reports for the proposed Albany WEF and Albany Grid Connection (powerline) will be contained in one shared document. This means that each specialist (where relevant) will be assessing both the WEF and the Grid Connection (powerline) in their reports. While the WEF and the Powerline will be submitted in separate applications, the impacts associated with each will be outlined by both the specialists and the EAP. This means that the WEF EIR will include the specialist and EAP findings of the WEF and Grid Connection (powerline) and the Grid Connection BA will including the specialist and EAP findings of the Grid Connection (powerline) and WEF. The Albany WEF and Albany Grid Connection are being undertaken by separate applicants and cannot be contained within the same application / documentation.</p>
<p>22. The plan of study of impact assessment fails to include a crucial traffic impact assessment. The next version of the DSR needs to be amended to include provision for such fundamentally</p>		<p>22. A Traffic Impact Assessment has been added to the Final Scoping Report list of Specialist Assessments (10.3). Please see 10.3.11 for the ToR for this specialist study. The main aim of this specialist study</p>

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<p>important study. The impacts on roads and traffic are significant and well known (and observed daily in the receiving environment). Issues of public road safety and inconvenience are but some of them.</p>		<p>is to inform the “Transport Management Plan” which is one of the many management plans which will be included in the EMPr.</p>
<p>23. A proper professional property and operations value impact assessment will need to be conducted for all of our clients operations and assets in order to quantify the potential damages that may result from the proposed AWEF.</p>		<p>23. The potential socio-economic and property impacts of the proposed Albany WEF will be assessed by the Socio-Economic Specialist as per section 10.3 of this report).</p> <p>At the time of submission Mr van der Spuy had not provided a complete list of contact details for the clients listed in Annexure A. CES requested this information on Monday, 22nd July. In order to determine the property location, industry, etc. of each client a table of questions will be distributed. A map detailing where the various properties are will be included in the EIR phase (on condition that all client contact details are provided in a timely manner; and assuming all clients are willing to provide the requested details). The location and assessment of all clients in Annexure A will form part of the EIA Phase of this process.</p>
<p>24. The VIA must establish the potential visual impact on each of our clients operations. Their entire properties and surrounds must be regarded as visually sensitive environments. There are no limited, individual sensitive locations.</p>		<p>24. Annexure A of Mr van der Spuy’s letter includes a list of clients who have been added to the I&AP database. The clients’ properties will be assessed by both the Socio-Economic and Visual specialists (as per the updated ToR of specialist studies in section 10.3 of this report).</p> <p>At the time of submission Mr van der Spuy had not provided a complete list of contact details for the clients listed in Annexure A. CES requested this information on Monday, 22nd July. In order to determine the property location, industry, etc. of each client a table of questions will be distributed. A map detailing where the various properties are will be included in the EIR phase (on condition that all client contact details are provided in a timely manner; and assuming all clients are willing to provide the requested details). The location and assessment of all clients in Annexure A will form part of the EIA Phase of this process.</p>
<p>25. Likewise the noise impact assessment must consider the entire properties of our clients as being uniformly very sensitive. The study must assess also the impacts and levels of low frequency</p>		<p>25. The Noise Specialist will assess the site (and the areas surrounding the site) as per SANS 101 SANS 10103 for “The measurement and rating of environmental noise with respect to land use, health,</p>

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<p>sound on humans and fauna. Infrasound is known to travel up to 20km and many species of fauna rely on infrasound to live out their life-cycles.</p> <p>26. EIA Regulations, Appendix 2 states that;</p> <p>1. (f) <i><u>“The objective of the scoping process is to, through a consultative process... agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; ...”</u></i>, and</p> <p>2(1) <i>“A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include—</i></p> <p><i><u>“(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;”</u></i>. (Underlining supplied)</p> <p>From the above requirements it is clear that the EAP needs to consult with I&APs and reach a “level of agreement” with them and that this must be reflected in the DSR, and indeed sworn to by the EAP. At this juncture our clients have had no interaction with the EAP and have not reached any level of agreement with the EAP. The items which need to be agreed upon are listed under Appendix 2(1)(f) and are underlined above. This comment makes it clear that none of these items are addressed in the DSR to our clients satisfaction and this comment further provides advice as to what level provision the EAP needs to proceed in order for our clients to be in a position to consider a level of</p>		<p>annoyance and to speech communication.” The Noise Specialist will inform the required buffers for the site and its surroundings based on their experiences as well as a site assessment and modelling.</p> <p>26. The consultation process (PPP review of Draft Scoping Report) is there to avail the content of the Scoping Report and EIR plan of study to I&APs in order for them to comment on the proposed scope and to raise issues which they may consider impacts. This is then incorporated into the Final Scoping Report, either in the form of additional scope in specialist studies or in the form of new specialist studies. All comments are documented in the Issues & Response Trail in as per the PPP regulations. This process is what acts as the process in which to include additional information from I&APs.</p> <p>With regards to 1(j), the I&APs have the opportunity to review and comment on the plan of study for the EIR. If I&APs do not comment on the plan of study, it is assumed that they are in agreement or approve the study. I&APs cannot be forced to comment and it does not mean that I&APs were not consulted. The PPP Documentation (Appendix A of this document) contains all correspondence between CES and stakeholders/I&APs. Comments received have been responded to within this IRT and clarifications have been made (as referenced in this table) within the Final Scoping Report.</p>

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<p>agreement with the EAP. It is certainly not the right of the EAP to assume any level of agreement with our clients in their capacity as I&APs. We await further consultation with the EAP in order to establish a level of agreement and we confirm that at this point there exists absolutely nil level of agreement between our clients and the EAP.</p> <p>Points 27-28 present the conclusion of the points raised in the Comment and Objection letter, as per Appendix A (13.5)</p>		
<p>As per Appendix A (13.5), a Position Statement was received from Indalo. The concluding statement reads as follows:</p> <p>“The Indalo Protected Area Management Authority opposes the proposed location of any wind energy facility that may jeopardize in any way the core eco-tourism business model of any of the game reserves within the Indalo Protected Environment and thereby threaten the substantial conservation and socio-economic benefits that these protected areas provide.”</p>	<p>Mr Mark Palmer</p> <p>Indalo</p> <p>19/07/2019</p>	<p>As per section 10.3 of the Final Scoping Report the Visual and Socio-Economic Specialist Studies will include an assessment of each of the consumptive / non-consumptive game industry entities which have identified themselves as having the potential of being visually affected by the proposed development. Each landowner, within 20km of the site and those who have raised individual concerns will be contacted to obtain more information regarding the location of their properties and the activities undertaken on these properties. The various specialists will use this data to inform the overall impact on each landowner.</p>
<p>As per Appendix A (13.5), an email was received from Ms Shane Gertze with comments on behalf of ECPTA. The following issues have been raised by ECPTA:</p> <p>ECPTA Protected Areas</p> <p>The ECPTA is the management authority of Beggar’s Bush and Kap River Nature Reserves. For Beggar’s Bush Nature Reserve we note that the Nature Reserve is in the middle of the project area for the proposed WEF. As such, we are concerned about the impact this development would have on the ecological functioning of the Nature Reserve. The project area south of the N2 appears to fall within the catchment area of Kap River, which flows through the Kap River Nature Reserve. A physical change in the landscape of the Kap River’s catchment could potentially have a negative impact on the Kap River Nature Reserve downstream. During the scoping period, there needs</p>	<p>Ms Shanè Gertze</p> <p>EASTERN CAPE PARKS AND TOURISM AGENCY [ECPTA]</p> <p>19/07/2019</p>	<p>All specialist studies and reports are undertaken during the EIR phase, and not during the scoping phase. This is to ensure that DEA, DEDEAT, ECPTA and other stakeholders have the opportunity to recommend additional specialist studies. Based on this comment, section 10.3 of the Scoping Report has been updated to include a hydrological study of the Kap River catchment. This additional specialist study will be used to inform the potential impact of the proposed development on this catchment.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>be an assessment on the hydrological impact of this development on the Kap River catchment.</p>		
<p>Page 22: Section 3.1 What would the percentage contribution of the development be in achieving the targets for renewable energy in South Africa.</p>		<p>The proposed development would contribute a maximum total of 297MW of energy. In term of the Eastern Cape Renewable Energy target of 1700MW (please see Chapter 3), the proposed Albany WEF would contribute 17% upon completion (provided that the proposed WEF be built as proposed in the initial documentation).</p>
<p>Page 23: Section 3.2 The relevant types of socio-economics impacts (e.g. short vs permanent jobs) and benefits (e.g. employment) needs to be noted and based on research and evidence from similar projects.</p>		<p>The Socio-Economic Specialist Report will include sections outlining the various jobs associated with the phases of the proposed development.</p>
<p>Pages 29, 43 and 97: Respectively Sections 3.5.2., 5.4 and 8.3 The specialists need to inform us if the project will not compromise the localised Climate Change Adaptation process for the area. It should be noted that area is within one of the areas identified as a climate change corridor as well as an ecological corridor linking existing protected areas within the Province.</p>		<p>The Ecological Specialist Report will assess the impacts of the proposed development on the climate change corridor (and the ecological corridor linking protected areas).</p>
<p>Page 33: Section 4.3 A map depicting the proximity of the protected areas managed by the ECPTA (especially, Beggar’s Bush, Great Fish River and Kap River Nature Reserves) and other entities (for example Private Game Reserves) need to be included. Also, the proposed visual impact analysis would need to assess the visual impact on these protected areas.</p> <p>Page 34: Section 4.4 It should be noted that the project area is within the Albany Centre of endemism as such there are numerous rare and endangered species that need to be thoroughly investigated by a botanist. Areas surrounding the project area has vulnerable species such <i>Eriospermum bracteatum</i>, <i>Faucaria tigrina</i> and a number of Endangered species that only have few living such as <i>Agathos bicornuta</i>. Hence, during the scoping period there also needs be a very extensive search for these threatened species to determine the extent of the impact or the possibility of driving this species to extinction.</p>		<p>As per Section 10.3 of this report, the specialist studies listed include a Visual, Ecological and Socio-Economic Impact Assessment. These reports will assess the impact on the surrounding public and private nature reserves as well as various consumptive-based game farms in the area.</p> <p>The Ecological Specialist Study includes both site visits and desktop assessment of the present ecological state of the receiving environment. This is done as part of the EIR phase. The Ecologists will detail the impacts on the receiving environment, both within the report and spatially (in the form of no-go, high sensitivity, moderate sensitivity and low sensitivity areas) to be able to inform suitable mitigation methods.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>Pages 44 -49: Section 5.6 The information in this Section should be based on the 2018 vegetation map produced by the South African National Biodiversity Institute.</p>		<p>The information in Section 5.6.1 was (Draft SR) and still is (Final SR) based on the written and spatial data of the 2018 SANBI National Vegetation Map (Mucina and Rutherford, 2018).</p>
<p>Page 70: Section 6.5.4. B The respective specialist would have to conduct a comparison of the positive economic benefits and sustainability between this development and the tourism industry of the Region where the project is proposed.</p>		<p>As per Section 10.3 of this report, the specialist studies listed include a Socio-Economic study. This study will include an assessment of the positive and negative socio-economic impacts on both the receiving environment and the surrounding communities.</p>
<p>Page 93: Section 7.5 Motivation is required regarding why the development is being proposed outside the Renewable Energy Development Zones.</p>		<p>A section of the proposed site occurs within REDZ 3 (Cookhouse). The remaining site was selected based on both wind potential and the landuse of the properties. Other factors will be detailed in the EIR and various specialist studies, including Avifaunal, Socio-Economic and Visual impacts of developments which have been proposed within the area, some of which occur within the Cookhouse (3) REDZ.</p>
<p>OTHER COMMENTS Lastly, based on the historical events which occurred within the Region, the specialists needs to investigate the potential impacts of this development on heritage.</p>		<p>As per Section 10.3 of this report, the specialist studies listed includes both Archaeological and Paleontological Impact Assessment studies. These studies will assess the impacts on the receiving environment in terms of heritage. All specialist impacts will be incorporated into the overall site sensitivity and will be included in the EIR in order to determine the overall impact of the proposed WEF.</p>
<p>As per Appendix A (13.5), an email was received from Mr Colin Coetzee. The following issues were raised:</p> <ol style="list-style-type: none"> 1. Our main source of income in international hunting, our clients come to us mainly to experience the open spaces and vast spaces without fences and other developments. Having this wind farm in the area will put an end to all of our income. This will leave our 12 staff unemployed. 2. We are concerned that said development will devalue properties in the area. We are substantially dependent on international investors. 	<p>Mr Colin Coetzee GAME 4 AFRICA 18/07/2019 [SUPPORTED BY: Mr Sandile Xakuma; Mr Elliot Embilini; Mr Mfundo Mike Mzizi; Mr Lubabalo Mohzi; Mr Norman Mandaza;</p>	<p>1, 2, 3. As per section 10.3 of the Final Scoping Report the Visual and Socio-Economic Specialist Studies will include an assessment of each of the consumptive / non-consumptive game industry entities which has commented on the Scoping Report as part of their assessments. Each landowner, including Mr Colin Coetzee, will be contacted to obtain more information regarding the location of their properties and the activities undertaken on these properties. The various specialists will use this data to inform the overall impact on each landowner.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>3. The turbines will impact the scenic views that the Eastern Cape is well-known for. This will have an adverse effect on tourism in the area, and subsequently mean the loss of revenue and employment opportunities.</p> <p>4. The Great Fish River Valley and surrounding hills is the confluence of the two Global biodiversity hotspots of Fynbos and Sub-tropical Thicket. The landscapes and scenic splendour of this area are now limited and threatened with a number of proposed and existing wind farm developments around the Eastern Cape. Various forms of wildlife-based tourism initiatives take place in this area of the Eastern Cape, and they will be greatly threatened by this development.</p> <p>5. The construction of said wind farm will have its own challenges, such as:</p> <ol style="list-style-type: none"> Increased risk for poaching and theft. Unavoidable impact on habitat caused by increased traffic and new roads made to turbines; the destruction of vegetation where the turbines will be erected. Erosion at the base of the turbine which can spread. Littering by contractors in the area. <p>6. The flickering and sound of wind farms will affect the animals of the area. There are multiple endangered species, such as the black rhino, which relies heavily on communication. The effect of wind farms has not been properly established on these animals, and we would like to see an independent study be completed.</p> <p>7. The impact on birds and bats, as stated in various studies.</p>	<p>Mr Frazer; Mr Bongwiwe Nanto; Ms Clare Rieger; and Ms Ntombekhaya Krolo]</p>	<p>4. The Ecological Specialist Study will include an assessment (including of the cumulative impacts of similar developments) of the impact on the various affected biomes to ensure that a tangible figure can be placed on the impact on vegetation.</p> <p>5. All impacts listed will be assessed in the EIR documentation based on information obtained from both specialists and existing wind energy developments.</p> <p>6. Various studies have been undertaken on the effect of terrestrial fauna within the vicinity of wind energy facilities. An independent study will not be conducted as part of the proposed Albany WEF due to the fact that site is not situated on game farms that includes species such as Black Rhinoceros (<i>Diceros bicornis</i>).</p> <p>7. The proposed Albany WEF site has undergone 12-month pre-construction Avifaunal and Bat monitoring assessments. The EIR phase will include the results of these studies in the form of an Avifaunal Impact Assessment Report and a Bat Impact Assessment Report.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>8. The noise generated by the wind farms poses a health risk – there are multiple reports of migraines, tinnitus, dizziness, and so forth.</p> <p>9. We are concerned about the effect of the inequitable spread of financial benefit. As we understand only the farms where wind farms will be erected will gain financially. Neighbouring farms, which will be directly affected, will not benefit financially and this may cause discord in the community.</p> <p>10. The environmental impact of the turbines after their lifespan is also concerning. We want to be informed as to what will be happening with the constructions when it reaches the end of its useful life. What will be done to restore the area to its former habitat?</p> <p>We support the idea of alternative energy sources and renewable energy, but it could be done in areas where it will have a smaller impact on nature and the local community.</p>		<p>8. The Scoping Report (section 10.3) includes a list of specialists who will be undertaking studies during the EIR phase. The Noise Impact Assessment will include the placement of buffers around any current and potential dwellings.</p> <p>9. The Socio-Economic Specialist Study will include an assessment of the financial risks and benefits of the proposed wind energy facility, which will include the associated impacts. These will be rated according to the impacts rating methodology as per section 10.2 “Impacts Assessment Methodology” of this report.</p> <p>10. The EIR includes the assessment of four phases, namely: planning and design phase, construction phase, operation phase and decommissioning phase. The decommissioning phase (which includes the removal of the structures and the associated rehabilitation of the site) will include the impacts and proposed mitigation methods associated with the removal of the structures.</p> <p>The EIR phase (and its associated specialist impacts) aims to determine the impact on the proposed site from an environmental and socio-economic perspective. Only once the impact on the receiving environment has been assessed will the EAP be in a position to comment on the scale of the impact of the proposed development.</p>
<p>As per Appendix A (13.5), a letter was received from Mr Gerry Pienaar on behalf of DEDEAT. The following issues were raised:</p> <p>The Eastern Cape Department of Economic Development and Tourism [DEDEAT] has perused the Draft Scoping Report and is generally satisfied that it provides an adequate basis for the further phases of the EIA process. The Department would however like to request as follows:</p> <p>1. The visual impact assessment must include all protected areas within a 20km radius of the proposed development as potential visual receptors. This should include Kwandwe Private Game Reserve and the newly established Buffelskloof Protected Environment. The visual impact assessment should pay particular attention to the impact that the proposed WEF could potentially</p>	<p>Mr Gerry Pienaar</p> <p>THE EASTERN CAPE DEPARTMENT OF ECONOMIC DEVELOPMENT AND TOURISM [DEDEAT]</p> <p>17/07/2019</p>	<p>1. Both the Visual and Socio-Economic Specialist Studies will include assessments of the protected areas within a 20km radius of the site. Please see section 10.3 of this report for updated ToRs of the relevant specialist studies. These assessments will include both Kwandwe Private Game Reserve and Buffalo Kloof Protected Environment.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>have at night, and if significant impacts are envisaged, what possible mitigation measures could be applied.</p> <p>2. Similarly the socio-economic assessment should pay particular attention to any adverse impacts that the proposed WEF might have on the business operations of major private game reserves, such as Kwandwe. The socio-economic assessment should not only reflect the undoubted benefits of a WEF, but should also consider the economic contribution that private conservation areas already make.</p> <p>3. DEDEAT regards the cluster of major private game reserves in the Albany area as of very significant economic and conservation value to the province and believes that everything possible should be done prevent adverse impacts on these assets.</p>		<p>2. Both the Visual and Socio-Economic Specialist Studies will include assessments of the protected areas within a 20km radius of the site. Please see section 10.3 of this report for updated ToRs of the relevant specialist studies. These assessments will include both Kwandwe Private Game Reserve and Buffalo Kloof Protected Environment.</p> <p>3. Relevant specialists will ensure that all impacts are identified, assessed and incorporated into their Reports. The EAP will use these reports to inform the overall impact of the proposed WEF in the EIR documentation.</p>
<p>As per Appendix A (13.5), a letter was received from Ms Zamalanga Langa on behalf of DEA. The following comments were submitted:</p> <p>a. It is noted that the listed activities that are applied for in the application form differ from those mentioned in the draft SR, an amended application form must be submitted with the final SR. Please note that the Department's application form template has been amended and can be downloaded from the following link https://www.environmental.gov.za/documents/forms</p> <p>b. The newspaper advert attached to the DSR is not clear. The final SR must include a clear copy of the advert used in terms of Regulation 41. (2)(c) of the EIA Regulations, as amended. The advert must clearly show the name of the newspaper and the date on which the advert was placed.</p> <p>c. Please ensure that all issues raised and comments received during the circulation of SR from registered I&APs and organs of state which have jurisdiction (including this Department's Biodiversity Section) in respect of the proposed activity are adequately addressed in the Final SR.</p>	<p>Ms Zamalanga Langa</p> <p>DEPARTMENT OF ENVIRONMENTAL AFFAIRS [DEA]</p> <p>09/07/2019</p>	<p>a. CES has checked and double checked the application form and the table of listed activities which appears in the application form and in the Draft Scoping Report are identical. A hard copy of the application form has been included with the submission of the Final Scoping Report for clarification purposes. As per the Departments website, the latest version of the Application Form template is dated September 2018. This is the same version which was submitted to the Department on the 14th June 2019 for the proposed Albany WEF.</p> <p>b. A higher resolution advertisement has replaced the original copy and is now clearly visible.</p> <p>c. All issues and comments received during the circulation of the SR have been detailed (verbatim) in this issues and response trail. All comments have been addressed and/or responded to.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>d. Proof of correspondence with the various stakeholders must be included in the Final SR. should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments.</p> <p>e. The Public Participation Process must be conducted in terms of Regulation 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014, as amended.</p>		<p>d. Please see Appendix A of the Final Scoping Report for all PPP proofs.</p> <p>e. Please see Section 9 and Appendix A of the Final Scoping Report.</p>
<p>f. Due to the number of similar applications in the area, all the specialist assessments must include a cumulative environmental impact statement. All identified impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e. hectares of cumulatively transformed land.</p> <p>g. The identified cumulative impacts associated with the proposed development must be rated with the significance rating methodology.</p> <p>h. The cumulative impacts significance rating must inform the need and desirability of the proposed development</p> <p>i. Detailed cumulative impact assessments must be provided in the EIAR for all specialist studies conducted. The specialist studies must provide proof that other specialist reports that were conducted for renewable energy projects in the area were reviewed and indicate how the recommendations, mitigation measures and conclusions have been taken into consideration when the conclusion and mitigation measures were drafted for this project.</p>		<p>f. Section 10.3 of the Scoping Report has been updated to specifically mention that each identified specialist report will include a cumulative impact of surrounding Wind Energy Facilities.</p> <p>g. All impacts identified by the specialists will be assessed using the CES Impacts Rating Methodology, this methodology can be found in section 10.2 “Impacts Assessment Methodology” of this report.</p> <p>h. The impacts and cumulative impacts identified and assessed by all specialists will be used to inform the need and desirability chapter of the EIR.</p> <p>i. As per the above responses, the specialist ToRs have been updated to reflect this inclusion.</p>
<p>j. The final Scoping Report must indicated and describe the competing land uses in the area. This must further motivate the desirability of locating the Wind Energy Facility at the preferred location.</p>		<p>j. Please refer to section 6.9 of the Final Scoping Report for a section outlining competing landuses, with specific reference to how this has informed the preferred location. Competing land uses will be assessed in both the Agriculture & Soils Specialist Report and the Socio-Economic Specialist Report (during the EIR phase).</p>

10 PLAN OF STUDY: ENVIRONMENTAL IMPACT ASSESSMENT PHASE

In line with the above-mentioned legislative requirement, this Chapter sets out the Plan of Study (PoS) for the EIA phase of the assessment. Consultation with DEA will be on going throughout this EIA process. However, it is anticipated that DEA will provide relevant comment with respect to the adequacy of this Plan of Study for the EIA, as it informs the scope and scale of the EIR.

10.1 SPECIFIC CHALLENGES TO THE EIA PHASE

The specific challenges and impacts relevant to the proposed Albany WEF, as a development within the Makhandha area, are the following:

- Impacts on the topography, geology and soils;
- Impacts on the current land uses;
- Removal of top soil and soil erosion;
- Impacts on terrestrial ecosystems;
- Impacts on aquatic ecosystems;
- Impacts on health and safety;
- Impacts on archaeological, paleontological and cultural sites;
- Impacts on the flow of traffic;
- Noise emissions;
- Visual Impacts; and
- Impacts on the socio-economic environment of the region.

10.2 SCOPE AND INTENT OF THE EIA PHASE

The following aspects in Section 10.1 above will be assessed as part of the EIA process, although it is assumed that additional impacts will be raised by I&APs, the EAP and/or the specialist consultants, and these will also be assessed.

The EIA phase has four key elements, namely:

Specialist Studies: Specialist studies identified as being necessary during the Scoping Phase, plus any additional studies that may be required by the authorities, will be undertaken during the initial phase of the EIA. Appropriately qualified and experienced specialists will be appointed to undertake the various assessments. Specialists will gather baseline information relevant to the study being undertaken and will assess impacts associated with the development. Specialists will also make recommendations to mitigate negative impacts and enhance benefits. The resulting information will be synthesised into the Environmental Impact Report (EIR), whilst the full specialist reports will be attached to the EIR as a Specialist Volume.

Environmental Impact Report (EIR): The main purpose of this report is to gather and synthesise environmental information and evaluate the overall environmental impacts associated with the development, to consider mitigation measures and alternative options, and make recommendations in choosing the best development alternative. The EIR also identifies mitigation measures and management recommendations to minimise negative impacts and enhance benefits. The EIR and associated specialist reports are made available for public and authority review and comment. The availability of the report will be advertised in one Provincial and one local newspaper and the report will also be made available for public scrutiny in easily accessible locations.

Environmental Management Programme (EMPr): The EMPr provides guidelines to the project proponent and the technical team on how best to implement the mitigation measures and management recommendations outlined in the EIR during the construction and operational phase.

Public Participation Process (PPP) commenced during the Scoping Phase will be continued, during which I&APs are afforded further opportunities to raise their issues, concerns and comments regarding the proposed project. It is possible that some of the project details may have changed in response to the preliminary findings of the Scoping Report, and as a result of design changes made by the project proponent. I&APs and key stakeholders are given the opportunity to review the Draft EIR before it is submitted to the authorities for consideration. Comments on the Draft EIR received from I&APs are included and addressed in the submitted EIR in the form of an Issues & Response Trail.

Impacts Assessment Methodology

CES has developed a revised rating scale for the Scoping Phase in accordance with the requirement outlined in Appendix 2 of the amended EIA Regulations (2014 and subsequent 2017 amendments). This scale takes into consideration the following variables:

- Significance
- Consequence
- Extent
- Duration
- Probability
- Reversibility and Mitigation

Issues Identification Matrix

Six factors are considered when assessing the significance of the identified issues, namely:

1. **Significance** - Each of the below criterion (points 2-6 below) are ranked with scores assigned, as presented in Table 1 to determine the overall significance of an activity. The total scores recorded for the effect (which includes scores for duration; extent; consequence and probability) and reversibility / mitigation are then read off the matrix presented in Table 8-1, to determine the overall significance of the issue. The overall significance is either negative or positive.
2. **Consequence** - the consequence scale is used in order to objectively evaluate how severe a number of negative impacts might be on the issue under consideration, or how beneficial a number of positive impacts might be on the issue under consideration.
3. **Extent** - the spatial scale defines the physical extent of the impact.
4. **Duration** - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
5. The **probability** of the impact occurring - the likelihood of impacts taking place as a result of project actions arising from the various alternatives. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development and alternatives. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.
6. **Reversibility / Mitigation** – The degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. The four categories used are listed and explained in Table 10-1 below. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

This impacts methodology will be in the assessment of all general impacts (those impacts identified and assessed by the EAP) and in the use of all specialist impacts (those impacts identified and assessed by the various specialists)

Table 10-1: Ranking of Evaluation Criteria.

Effect	Duration	
	Short term	Less than 5 years
	Medium term	Between 5-20 years
	Long term	More than 20 years
	Extent	
	Localized	The proposed site and its immediate environs
	Moderate	District / Municipal and Provincial level
	Extensive	National and International level
	Consequence	
	Slight	Slight impacts or benefits on the affected system(s) or party(ies)
	Moderate	Moderate impacts or benefits on the affected system(s) or party(ies)
	Severe/ Beneficial	Severe impacts or benefits on the affected system(s) or party(ies)
	Probability	
Unlikely	The likelihood of these impacts occurring is slight (low probability)	
May Occur	The likelihood of these impacts occurring is possible (high probability)	
Definite	The likelihood is that this impact will definitely occur	
Reversibility/ Mitigation	Impact Reversibility / Mitigation	
	Low	The impact can be easily, effectively and cost effectively mitigated/reversed
	Moderate	The impact can be effectively mitigated/reversed without much difficulty or cost
	High	The impact could be mitigated/reversed but there will be some difficulty in ensuring effectiveness and/or implementation, and significant costs
	Very High	The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly

10.3 SPECIALIST STUDIES

Based on the outcome of the current scoping report, it is proposed that the following specialist studies must be conducted as part of the EIA phase:

- **Visual Impact Assessment:** Michael Johnson and Alan Carter from CES
- **Noise Impact Assessment:** Morne de Jager from Enviro Acoustic Resources
- **Ecological Impact Assessment (Flora and Fauna):** Ayanda Zide, Craig Sholto-Douglas, Greer Hawley and Rosalie Evans from CES, and Luke Kemp (private consultant)
- **Avifauna Impact Assessment:** Jon Smallie from WildSkies Consulting
- **Chiroptera (Bat) Impact Assessment:** Kate MacEwan from Inkululeko Wildlife Services
- **Archaeological Impact Assessment:** Celeste Booth from Celeste Booth Heritage Consulting
- **Paleontological Impact Assessment:** Rob Gess from Rob Gess Consulting
- **Agriculture & Soils Impact Assessment:** Rosalie Evans, Roy de Kock and Chantel Bezuidenhout from CES
- **Socio-economic Impact Assessment:** Marchelle Terblanche from Index

- **Groundwater Assessment:** Riona Kruger from SRK Consulting Engineers
- **Traffic Impact Assessment:** Deon McQuirk from Emonti Consulting Engineers

10.3.1 VISUAL IMPACT ASSESSMENT

The following Terms of Reference will be used to guide the Visual Impact Assessment:

- Conduct a site reconnaissance visit and photographic survey of the proposed project site.
- Conduct a desk top mapping exercise to establish the visual sensitivity of the affected area:-
 - Describe and rate the scenic character and sense of place of the area and site.
 - Establish extent of visibility by mapping the view-sheds and zones of visual influence
 - Establish visual exposure to viewpoints
 - Establish the inherent visual sensitivity of the site by mapping slope grades, landforms, vegetation, special features and land use and overlaying all relevant above map layers to assimilate a visual sensitivity map.
- Review relevant legislation, policies, guidelines and standards.
- Prepare a Visual Baseline/Sensitivity report
 - Assess visual sensitivity criteria such as extent of visibility, the sites inherent sensitivity, visual sensitivity of the receptor's, visual absorption capacity of the area and visual intrusion on the character of the area
 - Prepare photomontages of the proposed development
 - Conduct shadow flickering modelling if deemed necessary
 - Assess the proposed project against the visual impact criteria (visibility, visual exposure, sensitivity of site and receptor, visual absorption capacity and visual intrusion) for the site.
 - Assess impacts based on a synthesis of criteria for each site (criteria = nature of impact, extent, duration, intensity, probability and significance)
 - Assess the No-go alternative
 - Describe practicable mitigation measures to be implemented to minimise negative impacts
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.
- Assess the impact of the proposed WEF on the following sensitive visual receptors (on condition that the listed I&APs can provide the relevant information pertaining to their properties in a timeous manner):
 - Kwandwe Private Game Reserve;
 - Buffalo Kloof Private Game Reserve;
 - Trumpeters Drift;
 - Eccca Pass Safaris;
 - Bucklands / Emerald Sky Safaris;
 - Fort Governors Estate;
 - Game 4 Africa;
 - Glen Melville;
 - Hennie Brink;
 - Huntshoek;
 - Kevin Bates;
 - Lysso Safaris;
 - Longwood Trust;
 - Majeje Safaris;
 - Murray Crous;
 - Lakeside; and
 - The Hills Game Estate.

10.3.2 NOISE IMPACT ASSESSMENT

The following Terms of Reference will be used to guide the Noise Impact Assessment:

- Identify all potential noise sensitive sites that could be impacted upon by activities relating to the construction and operation of the proposed wind energy facility.
- Identify all noise sources relating to the activities of the facility during the construction and operation phases that could potentially result in a noise impact at the identified noise sensitive sites.
- Determine the sound emission, operating cycle and nature of the sound emission from each of the identified noise sources.
- Calculate the combined sound power level due to the sound emissions of the individual noise sources.
- Calculate the expected rating level of sound at the identified noise sensitive sites from the combined sound power level emanating from identified noise sources.
- Display the rating level of sound emitted by the noise sources in the form of noise contours superimposed on the map of the study area.
- Determine the existing ambient levels of noise at identified noise sensitive sites by conducting representative sound measurements.
- Determine the acceptable rating level for noise at the identified noise sensitive sites.
- Calculate the noise impact at identified noise sensitive sites.
- Assess the noise impact at identified noise sensitive sites in terms of:-
 - SANS 101 SANS 10103 for “The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication”.
- Investigate alternative noise mitigation procedures, if required, in collaboration with the design engineers of the facility and estimate the impact of noise upon implementation of such procedures.
- Prepare and submit a full environmental noise impact report containing detailed procedures and findings of the investigation including recommended noise mitigation procedures, if relevant.
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.

10.3.3 ECOLOGICAL IMPACT ASSESSMENT

An Ecological Impact Assessment will be required to assess the sensitivity of the fauna and flora, and ecological habitats within the boundaries of the Albany WEF site.

The Ecological Impact Assessment will include the following main tasks:

- Assess the conservation value of the various ecological habitats in the area, in order to assess the significance of habitat loss on floral and faunal groups as a result of the development.
- Define and map floral and faunal habitats that are sensitive and require conservation. These may need to be defined as No-Go or Restricted Development areas.
- Carry out rapid surveys to assess the diversity of floral, amphibian, reptile, and mammal species in the area.
- Identify the main animal communities associated with the plant communities (amphibian, mammals and reptiles).
- Identify any rare or endangered floral faunal species that require consideration in the conservation programme.
- Describe the impacts of current land use, so that the potential impacts from the development on the natural environment can be understood in this context.
- Place the project area within the biodiversity context of the region.
- Provide a sensitivity map of the development area in order for the proponent to better place the layout of the project’s infrastructure.
- To address all issues and concerns raised by I&APs during the scoping phase.
- Determine the impacts of the construction and operation of the proposed development on the floral and faunal biodiversity in the area.

- The significance of the potential impacts and benefits will be assessed using the CES methodology. Any predictions will need to include the confidence in the impacts occurring, and the significance of these impacts occurring on the local flora and fauna.
- Provide recommendations and mitigation measures that will reduce negative impacts on the local ecology.
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.

10.3.4 AVIFAUNAL IMPACT ASSESSMENT

According to the adopted “Best practice Guidelines” for avifaunal impact assessment for renewable energy projects, a minimum of 12 months monitoring is required prior to the generation of an impact assessment. In accordance with these guidelines the following Terms of Reference will be undertaken:

- The existing environment must be described and the bird communities most likely to be impacted will be identified. Different bird micro-habitats must be described as well as the species associated with those habitats.
- Typical impacts that could be expected from the developments must be listed as well as the expected impact on the bird communities. Impacts must be quantified (if possible) and a full description of predicted impacts (direct and indirect) must be provided.
- Gaps in baseline data must be highlighted and discussed. An indication of the confidence levels must be given. The best available data sources must be used to predict the impacts including the results of the pre-construction monitoring and specialist studies that have been completed for previous EIA studies (if any) conducted at the site (or similar sites), and extensive use must be made of local knowledge, if available.
- The potential impact on the birds must be assessed and evaluated according to the requirements prescribed by the Environmental Assessment Practitioner.
- Practical mitigation measures must be recommended and discussed, including a post-construction monitoring programme.
- Bird sensitive areas must be mapped in a sensitivity map for easy reference. Any no-go areas must be clearly indicated.

The following approach must be used to conduct this study:

- Obtain Bird distribution data of the Southern African Bird Atlas Project 2 to ascertain which species occur within the study area. A data set will be obtained for the quarter degree grid cells within which the development will take place.
- Conduct an extensive review of relevant ornithological literature, including the bird specialist studies (if any) that have already been conducted at the site.
- Classify the vegetation types relating to bird communities in the quarter degree grid cells and from physically inspecting the site.
- Conduct an extensive review of international literature on bird impacts at wind energy facilities will be conducted.
- The results of the pre-construction monitoring programme must be used to inform the findings of bird specialist study (see point 3 below).
- Technical details of the planned infrastructure will be obtained from the client through the Environmental Assessment Practitioner.
- The methodology for data gathering is guided by the latest version of the “Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa”. This document is endorsed by the Endangered Wildlife Trust (EWT) and Birdlife South Africa (BLSA), and based on international best practice.

Priority avifauna species are to be identified from the following data sources:

- The latest BLSA list of priority species for wind farms.
- Existing avifaunal data sources, e.g. the South African Bird Atlas 2 (SABAP2) and the Co-ordinated Avifaunal Road Count (CAR).
- Local knowledge.
- Professional judgment and experience, including experienced gained at sites currently being monitored.
- The bird impact assessment report must contain an analysis of the results of the pre-construction monitoring, and management recommendations to minimise the envisaged impacts. The report will cover the following:
 - Description of data capture methodology (e.g. survey method, delineation of study area and identification of priority avifauna).
 - Estimated abundance of avifauna, which serves as the baseline for comparing potential displacement of birds during and after construction.
 - Quantification of flight movement.
 - Statistical analysis of results to test for representativeness of the data (i.e. whether the data is representative of general flight behaviour).
 - Maps of recorded flights to indicate potential high risk areas.
 - A site specific collision risk rating for each priority species.
 - An assessment of the envisaged impacts.
 - Recommendations for minimising the envisaged impacts e.g. turbine placement and buffer zones around priority species nests.

10.3.5 BAT IMPACT ASSESSMENT

The methodology for the pre-construction monitoring will include 5 site visits (including 1st installation visit) evenly spaced throughout a 12-month period (thus every 3 months), allowing for the discrimination of seasonal differences.

The following will be included:

- Passive bat activity monitoring systems (bat detectors) will be deployed on site to measure nightly bat activity levels. The microphones of these systems will be mounted at 2 heights, 10m and minimum 55m (80m preferable) on the met mast/s to record activity at applicable heights. Additional monitoring systems on temporary 9-10 mast/s will also be set up on site to increase coverage of comparative terrain. Animalia will install the monitoring equipment. Werner Marais is in possession of a Level 2 Working at Heights Qualification and can install the systems on met masts.
- The site may be surveyed for nocturnal bat activity by transecting it with a bat detector mounted on a vehicle and/or on foot (where allowed by terrain).
- The different habitat types must be recorded.
- Confirm bat roosts or features capable of offering bat roosts or attracting bats.
- All data collected during the transects and passive monitoring periods will be analysed and presented in the quarterly reports.

The results for the above mentioned methodologies will be delivered as such:

- Graphic indication of bat activity over a time period; correlated with environmental data
- Represented on a map of bat species occurrence.
- Map the different habitat types that are applicable to bats and assess their significance to bat ecology.

10.3.6 ARCHAEOLOGICAL (HERITAGE) IMPACT ASSESSMENT

As part of the EIA for the proposed development, it is necessary to undertake a Phase 1 archaeological and historical survey to fulfil requirements in accordance with the National Heritage Resources Act (25 of 1999). The National Heritage Resources Act requires that "...any development or other activity which will change

the character of a site exceeding 5 000 m², or the rezoning or change of land use of a site exceeding 10 000 m², requires an archaeological impact assessment”

A heritage impact assessment will therefore be conducted, the primary objective of which is to determine whether there are any indications that the proposed site is of heritage significance. This assessment will be a Phase 1 assessment and will be largely desk-top although a site visit will be required to afford the specialist an opportunity to look for significant artefacts on the surface of the site. It is not expected that a more detailed Phase 2 assessment will be required but this remains to be confirmed. The report, along with the EIA documentation will be submitted to the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) for their comment prior to submission of the final reports to the DEA.

The terms of reference for the Phase 1 heritage study will be to:

- Provide a description of archaeological artefacts, structures (including graves) and settlements, which may be expected in the project areas;
- Provide a cultural context and provenience for archaeological artefacts, structures (including graves) and settlements in the project area and in the surrounding landscape by means of a detailed desktop background study;
- Assess the nature and degree of significance of such resources within the areas;
- Establish heritage informants/constraints through establishing thresholds of impact significance;
- Assess any possible developmental impacts, present and future, on the archaeological and historical remains within the larger landscape;
- Propose possible heritage management measures for following phases of heritage mitigation and management.
- Liaise and consult with the relevant Heritage Resources authority with regards to the site investigation.
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.
- Assess the impact of the proposed WEF on the following sensitive visual receptors (on condition that the

10.3.7 PALEONTOLOGICAL IMPACT ASSESSMENT

Following the “SAHRA APM Guidelines: Minimum Standards for the Archaeological & Paleontological Components of Impact Assessment Reports” the aims of the PIA are to:

- Identify exposed and subsurface rock formations that are considered to be paleontological significant.
- Assess the level of paleontological significance of these formations.
- Conduct fieldwork to assess the immediate risk to exposed fossils as well as to document and sample these localities.
- Comment on the impact of the development on these exposed and/or potential fossil resources.
- Make recommendations as to how the developer should conserve or mitigate damage to these resources.
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.

10.3.8 AGRICULTURAL & SOILS IMPACT ASSESSMENT

The study site and surrounding areas will be described using a two-phased approach. Firstly, a desktop assessment of the site will be conducted in terms of current agricultural classifications. The assessment will be based on existing soil and agricultural potential data for the site.

Further to the above, a site visit will be conducted to assess soils onsite. Soil samples will be collected at random points and sent to a Soil Laboratory for comparative analysis.

The following terms of reference is used as a guideline for the study:

- Identify and assess all potential impacts (direct, indirect and cumulative) and economic consequences of the proposed development on soils and agricultural potential.
- Describe and map soil types (soil forms) and characteristics (soil depth, soil colour, limiting factors, and clay content of the top and sub soil layers).
- Describe the slope of the site.
- Determine the agricultural potential of the site.
- Describe current land use as well as possible alternative land use options.
- Provide recommended mitigation measures, monitoring requirements, and rehabilitation guidelines.
- Assess competing landuses within the Albany WEF area.
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.

10.3.9 SOCIO-ECONOMIC IMPACT ASSESSMENT

The nature of the proposed project deems it necessary to conduct a Socio-economic Impact Assessment. This process will include:

- The provision of a detailed description of the socio-economic environment in and around the project area.
- Analysis the potential impacts of the proposed project.
- Provision of guidelines for limiting or mitigating negative impacts and optimising benefits.

The specific terms of reference are as follows:

- Describe the local social environment, with particular reference to the possible labour-sending communities.
- Determine the current land-use patterns of the development area and the areas outside of the development boundary that are likely to be affected.
- Assess the significance of potential environmental and social impacts on the local populace and the district.
- Evaluate how the project could contribute to Local Economic Development (LED) in line with the Integrated Development Plans (IDPs) of the local and district municipalities.
- Establish a baseline understanding of current state of livelihoods, income sources, education levels and food security.
- Investigate possible effects on livelihoods, income levels, education levels, food security and other factors relevant to the affected communities.
- Consultation with stakeholders and I&APs.
- Develop a monitoring programme to ensure effective implementation of the recommended mitigation measures.
- Assess the cumulative impact by reviewing available data of WEFs within 30km of the proposed Albany WEF site.
- Assess the impact of the proposed WEF on the following sensitive visual receptors (on condition that the listed I&APs can provide the relevant information pertaining to their properties in a timeous manner):
 - Kwandwe Private Game Reserve;
 - Buffalo Kloof Private Game Reserve;
 - Trumpeters Drift;
 - Ecca Pass Safaris;
 - Bucklands / Emerald Sky Safaris;
 - Fort Governors Estate;
 - Game 4 Africa;
 - Glen Melville;
 - Hennie Brink;

- Huntshoek;
- Kevin Bates;
- Lyso Safaris;
- Longwood Trust;
- Majeje Safaris;
- Murray Crous;
- Lakeside; and
- The Hills Game Estate.

10.3.10 HYDROLOGICAL ASSESSMENT

East Cape Parks and Tourism Agency has requested the inclusion of a Hydrological study in order to assess the potential impact of the turbines situated on the south-eastern side of the site on the Kap River catchment system. The ToR for this study (desktop) includes the following:

- Provide a basic characterisation of the hydrological and groundwater resources, including seasonal variations, based on existing information.
- Review the regional geology and assess the potential influence on aquifers and hydraulic regimes;
- Identify any environmental impacts on surface and groundwater resources that may result from the proposed Albany WEF.
- Comment on any risks of polluting groundwater resources at the WEF site.
- Determine whether there will be any cumulative impact on groundwater resources.
- Work in consultation with other specialists to ensure that the linkages between the various systems are understood, especially any surface water and wetland related impacts (ecological specialists).
- Assess the significance of the impacts, and provide practical and realistic to mitigate impacts.

10.3.11 TRAFFIC IMPACT ASSESSMENT

A Traffic Impact Assessment will be included in the specialist documentation for the EIA Phase. This study will be used to inform the transport management plan which will form part of the EMPr. The ToR for this study (desktop) includes the following:

- Assess the development and the extent of the work required to complete the study.
- Obtain available/required data generally required for a desktop study.
- The following analyses, were necessary, would be conducted based on the nature of the development (all analyses will be based on existing traffic count data available or from assumptions made of the traffic volumes in the cases where traffic count data is not available):
 - Base year, plus generated traffic.
 - Five year design year- with generated traffic.
- Identification of possible Traffic and Transportation issues that may impact on the proposed development.
- Evaluate the analyses and formulate recommendation and conclusions.
- Produce concept drawings, were necessary.
- Document all findings.

10.4 ENVIRONMENTAL IMPACT REPORT (EIR)

The main purpose of this report is to gather and evaluate environmental information, so as to provide sufficient supporting arguments to evaluate overall impacts, consider mitigation measures and alternative options, and make a valued judgement in choosing the best development alternative. The EIR is made

available for public and authority review. The availability of the report is advertised in the local newspaper and is situated at an easily accessible location.

10.5 ISSUES AND RESPONSE TRAIL

The issues and response trail consists of the compilation of comments, issues and concerns raised by I&APs and the authorities as well as the relevant responses to these comments.

10.6 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

The EMPr informs the client and the technical team of the guidelines which will need to be followed during construction to ensure that there are no lasting or cumulative negative impacts of the construction process on the environment.

- The standards and guidelines that must be achieved in terms of environmental legislation.
- Mitigation measures and environmental specifications which must be implemented for all phases of the project in order to minimise the extent of environmental impacts, to manage environmental impacts and where possible to improve the condition of the environment.
- Provide guidance through method statements that are required to be implemented to achieve the environmental specifications.
- Define corrective action that must be taken in the event of non-compliance with the specifications of the EMPr.
- Prevent long-term or permanent environmental degradation.

In addition to this, the Public Participation Process (PPP) is continued. As for the Scoping Phase, opportunity is provided for I&APs to voice concerns and issues regarding the project. At this stage the project details may have changed in response to the preliminary findings of the Draft Scoping Report. I&APs and key stakeholders are also given the opportunity to review the Environmental Impact Report (EIR) before it is submitted to the authorities.

10.7 ENVIRONMENTAL AUTHORISATION (EA) AND APPEALS PROCESS

Upon thorough examination of the EIR, the authority will either issue an Environmental Authorisation (EA), which either authorises the project or refuses authorization. Should authorisation be granted, it usually carries Conditions of Approval. The proponent is obliged to adhere to these conditions. Once the authorisation has been issued, it is publicised and the public are given 20 calendar days from the issuing of the authorisation to lodge an appeal with the authorities.

10.8 THE PUBLIC PARTICIPATION PROCESS (PPP)

10.8.1 INITIAL PPP

Stakeholders which are likely to be affected by the proposed Albany WEF will be included in the initial I&AP Database, these will include the relevant departments, landowners and surrounding landowners. In addition, individuals who contact CES for information on the Albany WEF project, due to notification by means of the onsite signage, the advertisement or word-of-mouth, etc. will be registered on the I&AP Database. These registered I&APs will receive a BID, consisting of an overview of the proposed Albany WEF project.

10.8.2 PUBLIC REVIEW OF THE DRAFT SCOPING REPORT (DSR)

All I&APs included in the Register of I&APs, will be notified in writing of the availability of the DSR for public review. The notification letter will provide details of the 30-day public comment period, the venues and websites where the report could be viewed, the contact details of the PPP consultant and how written comments on the DSR should be submitted.

10.8.3 PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)

All I&APs on the Register of I&APs will be notified in writing of the availability of the DEIR for public review. The notification letter will provide details of the 30-day public comment period, the venues and websites where the report can be viewed, the contact details of the PPP consultant and how written comments on the DEIR should be submitted, and details of the public meeting to present the DEIR.

10.8.4 NOTIFICATION OF ENVIRONMENTAL AUTHORISATION (EA)

Advertisements announcing the Environmental Authorisation will be placed in the same regional and local newspapers used to announce the project and the EIA. The adverts will be placed in the Daily Dispatch. The adverts will inform I&APs of the decision and where the decision can be accessed and will draw their attention to their right to appeal the decision and set out the appeal procedures.

10.9 ENVIRONMENTAL IMPACT REPORT (EIR)

The Specialist Studies described in Section 10.2 will inform the EIR. In addition, the EIR will gather any comments received from I&APs and determine whether it is necessary to increase the scope of work or amend the Terms of Reference for the specialists. The EIR will examine the 'No-Go' alternative along with the proposed development, as required in the EIA regulations.

10.9.1 STRUCTURE OF THE EIA REPORT

Proposed structure of EIR:

To avoid the EIR being excessively long and cumbersome, whilst meeting the content requirements specified in the NEMA EIA regulations, the final report will be divided into a number of volumes indicated in Table 10-2.

Table 10-2. Reports that will be generated in the EIA phase for the proposed Albany WEF.

REPORT	CONTENTS
Environmental Impact Report (EIR)	This report will contain the following; 1. Introduction

	<ul style="list-style-type: none"> ➤ Detail of the environmental assessment practitioner who compiled the report ➤ Expertise of the EAP to carry out an environmental impact assessment <p>2. Description of the Project</p> <ul style="list-style-type: none"> ➤ A description of the property on which the activity is to be undertaken ➤ The location of the activity on the property ➤ A description of the types of activities that are proposed for the development. <p>3. Description of the Affected Environment</p> <ul style="list-style-type: none"> ➤ The natural environment ➤ The socio-economic environment ➤ The legal, policy and planning setting <p>4. The Public Participation Process</p> <ul style="list-style-type: none"> ➤ Steps undertaken in order to notify and involve I&APs ➤ Advertisements and media ➤ Meetings held in the PPP ➤ Issues and Comment Trail management <p>5. Summary of Comments and Response Trail</p> <ul style="list-style-type: none"> ➤ Summary of comments and issues raised by I&APs and responses to the issues <p>6. Summary of Specialist Reports</p> <ul style="list-style-type: none"> ➤ Summary of the findings and recommendations of all specialist studies <p>7. Alternatives Considered</p> <ul style="list-style-type: none"> ➤ Description of all alternatives considered in the EIA ➤ Initial screening of alternatives ➤ Description and comparative assessment of all alternatives identified during the EIA <p>8. The Significance of Potential Environmental Impacts</p> <ul style="list-style-type: none"> ➤ The methodology used to determine the significance of environmental impacts ➤ Impacts on the natural environment ➤ Impacts on the socio-economic environment ➤ Impacts on the legal, policy and planning setting <p>9. Environmental Impact Statement</p> <ul style="list-style-type: none"> ➤ A summary of the key findings of the EIA ➤ Comparative assessment of the positive and negative implications of the proposed activity and identified alternatives <p>10. Conclusions</p> <ul style="list-style-type: none"> ➤ Mitigation measures for identified adverse environmental impacts ➤ Opinion as to whether the activity should or should not be authorised ➤ Any conditions that should be made in respect to any form of authorisation <p><i>It should be noted that the above is not the exact Table of Contents for the EIA, but is intended to indicate the major topics that will be covered in the report.</i></p>
<p>Specialist Studies</p>	<p>This will be a compilation of all the specialist studies undertaken in the EIA, and will include detailed assessments of -</p> <ul style="list-style-type: none"> ➤ Visual impacts ➤ Heritage impacts ➤ Paleontological impacts ➤ Noise impacts ➤ Ecological impacts ➤ Avifauna impacts ➤ Bat impacts ➤ Agricultural impacts ➤ Socio-economic impacts

<p>Issues and Response Trail</p>	<p>This will include -</p> <ol style="list-style-type: none"> 1. Lists of persons, organisations and organs of state that were registered as I&APs 2. Comments and Response trail for the Scoping and EIA phases 3. Copies of any representations, objections and comments received from I&APs
<p>Environmental Management Programme (EMP)</p>	<p>Environmental management programme for key activities at the proposed renewable energy facility, which will contain the following -</p> <ol style="list-style-type: none"> 1. Introduction <ul style="list-style-type: none"> ➤ The details of the EAP who prepared the EMP ➤ The expertise of the EAP to prepare an EMP 2. Detailed description of the aspects of the activity covered by the EMP 3. Mitigation Measures and Actions <ul style="list-style-type: none"> ➤ Planning and Design ➤ Pre-construction and construction activities ➤ Operation and undertaking of the activity ➤ Rehabilitation of the environment 4. Responsibilities <ul style="list-style-type: none"> ➤ Persons responsible ➤ Time periods for implementation 5. Monitoring Programme

11 CONCLUSIONS

11.1 ACTIVITY AND POSSIBLE IMPACTS

Albany Wind Power (Pty) Ltd, plans to develop, construct and operate a Wind Energy Facility (WEF) approximately seven kilometres east of Makhanda in the Eastern Cape Province. The project site is situated in Makana LM which forms part of the Sarah Baartman DM. According to the data recorded by Albany Wind Power in the area, this project site appears to have favourable wind conditions to operate a wind farm.

The proposed Albany WEF will consist of up to 66 turbines each capable of generating approximately 4.5 Mega Watts (MW) of power. The WEF will also include a short powerline and switching station in order to connect the WEF to the existing Eskom Substation (this powerline will be applied for in a separate environmental application process which will run parallel to WEF application). The current layout allows for a maximum generating output of up to 297 MW, but the final design may be reduced dependant on the outcome of the specialist studies undertaken during this Environmental Impact Assessment Process. The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover a maximum total combined footprint area of approximately 46.19 ha (post rehabilitation) depending on the final layout design should the project proceed to the construction phase.

The nature of the proposed site for the establishment of the WEF is suitably-placed on land currently used for livestock grazing. However, the establishment of the proposed WEF raises various issues pertaining to:

- Visual intrusion on the landscape.
- Noise impacts on surrounding land inhabitants.
- Ecological sensitivity (flora and fauna).
- Agricultural potential and utilisation.
- Avifaunal and bat sensitivity.
- Heritage sites and resources.
- Paleontological sites in terms of potential fossil deposits.
- Socio-economic impacts and benefits.

These key issues are to be comprehensively addressed and assessed according to the Terms of Reference developed for each specialist during the EIA phase.

11.2 NEED AND DESIRABILITY

The need to reduce greenhouse gas emissions and the importance of a secure and diversified energy supply has resulted in a national shift towards the use of renewable energy technologies. In support of this, the national and provincial government has encouraged the utilisation of renewable energy through policy and strategic planning. The proposed Albany WEF can contribute towards these national and provincial goals by adding approximately 297MW to the policy targets. The Eastern Cape has traditionally been isolated in its energy supply, relying on Eskom's distribution network to carry energy from the northern coal-fired power plants to the region. The proposed Albany WEF would stabilise the local (Makana LM) and provincial (Eastern Cape) grid network, leading to a more stable and long term solution to the energy requirements of the region.

11.3 ALTERNATIVES

The key alternative element at this stage is the siting of individual turbines within the proposed WEF boundary. This process will be undertaken through rigorous specialist input. Once all site sensitivities have been determined then a consolidated sensitivity map will be used to refine the layout by either moving turbines to less sensitive areas within the site or by removing turbines from the layout.

11.4 FATAL FLAWS

The current scoping report has not identified any fatal flaws associated with the proposed Albany WEF and suggest that there is no reason why the proposed development should not proceed to EIA phase for further assessment.

11.5 THE EIA PROCESS

The following activities will form part of the EIA phase:

- Public Participation: public meetings, focus group meetings, public review of documentation;
- Specialist studies as described in the Plan of Study;
- Consultation with I&APs regarding possible significance of impacts and suitable mitigation measures;
- Evaluation of impacts prior to mitigation;
- Compilation of practical and effective mitigation measures;
- Evaluation of impacts after mitigation;
- Provision of an opinion as to whether or not the activity should be authorised;
- Compilation of an environmental impact statement; and
- Compilation of a draft Environmental Management Programme (EMPr).

12 EAP AFFIRMATION

Report Title: Albany Wind Energy Facility: Scoping Report
Report Version: *Final*
Department of Environmental Affairs (DEA) Reference Number: TBA
Coastal & Environmental Services Project Code: P40700009

Environmental Assessment Practitioner (EAP) Details

EAP: Dr Alan Carter
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EAP Declaration

- I act as the independent environmental practitioner in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;
- All of the particulars furnished by me in this form are true and correct; and
- I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations.

ENVIRONMENTAL CONSULTANT	RESPONSIBILITY	DATE
Alan Carter	<i>Project Leader & The EAP</i>	July 2019
Caroline Evans	<i>Project Manager & Lead Author</i>	July 2019
Rosalie Evans	<i>Co-Author & GIS Mapping</i>	July 2019

13 APPENDIX A: PPP DOCUMENTATION

13.1 BACKGROUND INFORMATION DOCUMENT

13.1.1 BID V1

**PROPOSED INNOWIND ALBANY WIND ENERGY FACILITY,
GRAHAMSTOWN, EASTERN CAPE**

**BACKGROUND INFORMATION DOCUMENT (BID)
& INVITATION TO COMMENT**

Return address for comments:
Caroline Evans
EOH Coastal & Environmental Services
67 African Street, Grahamstown,
6139, Eastern Cape Province
Tel: (046) 622 2364
Email: c.evans@cesnet.co.za

EOH
Coastal & Environmental Services

InnoWind

AIM OF THIS DOCUMENT

The purpose of this document is to ensure that people that are interested in or affected by the proposed project are provided with information about the proposal, the process being followed and provided with an opportunity to be involved in the Full Scoping & Environmental Impact Assessment (EIA) process for the Proposed Innowind Albany Wind Energy Facility situated east of Grahamstown in the Eastern Cape province.

Registering as an Interested and/or Affected Party (I&AP) allows individuals or groups the opportunity to contribute ideas, issues, and concerns relating to the project. I&APs also have an opportunity to review all of the reports and submit their comments on those reports. All of the comments that are received will be included in the reports that are submitted to the relevant Competent Authority.

THE PROPONENT

Albany Wind Power (Pty) Ltd. is a special purpose vehicle (SPV) created by InnoWind (Pty) Ltd, a South African based renewable energy generator that develops, finances, builds, operates and maintains commercial wind powered generation facilities. InnoWind's development and operating expertise has been acquired through its French parent company, EDF Energies Nouvelles, which is the renewable energy arm of the French power utility EDF. EDF EN currently owns and operates over four thousand megawatts (4000MW) of wind energy power plants worldwide.

Albany Wind Power (Pty) Ltd, plans to develop, construct and operate a Wind Energy Facility (WEF) approximately ten kilometres (10km) east of Grahamstown in the Eastern Cape Province.

THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Ms. Caroline Evans

Caroline is a Senior Environmental Consultant based in the Grahamstown branch. She holds a BSc degree in Zoology and Environmental Science (with distinction) and a BSc Honours degree in Environmental Science (with distinction), both from Rhodes University. Caroline has completed accredited courses in environmental impact assessments and wetland assessments.

Caroline's primary focuses include Project Management, the general Environmental Impact Assessment Process, Visual Impact Assessments and Wetland Impact Assessments. Examples of fields in which Caroline was the project manager and lead report writer include Wind Energy Facilities and the associated infrastructure (including powerlines), Solar PV, Waste Water Treatment Works, Housing Developments and Agricultural Developments. Her experience with wind energy facilities and associated infrastructure includes the project management and report writing for the Umsobomvu WEF, Dassiesridge WEF, Scarlet Ibis WEF, Albany WEF, Waaihoek WEF and the Great Kai WEF.

Caroline is well versed in South African policy and legislation relating to development, particularly in the Eastern Cape Province. In addition, Caroline's project management experience has helped her gain knowledge and experience in the technical and financial management and coordination of large specialist teams, competent authority and stakeholder engagement, and client liaison.

EOH Coastal & Environmental Services (EOH CES) Company Profile

Coastal and Environmental Services (Pty) Ltd is a South African based company, with its head office in Grahamstown, and offices in Cape Town, Port Elizabeth, East London and Johannesburg, South Africa, as well as a wholly owned subsidiary in Maputo, Mozambique (EOH CES is registered as an Environmental Practitioner with the Mozambican authorities). EOH CES was established in 1990, to service a then fledgling market in the field of Environmental Management and Impact Assessment. The Company has grown apace with the increased market demand for environmental and social advisory services, both in South Africa as well as many African countries. Our principal area of expertise is in assessing the impacts of development on the natural, social and economic environments through, among other instruments, the environmental impact assessment process, and in so doing contribute towards sustainable development.

In 2013 EOH Mthombo (Pty) Ltd acquired all the shares in CES (Pty) Ltd, and CES now operates as EOH Coastal & Environmental Services. We are proud to be associated with EOH (www.eoh.co.za) which is one of the largest providers of enterprise applications, technology, outsourcing, cloud and managed services, as well as consulting services in a range of disciplines. The group is active in South Africa and Africa and has a strong Black Economic Empowerment profile. This acquisition has enabled EOH CES to combine EOH's great reach and reputation with CES's recognized excellence in environmental and social advisory services. It has allowed us to maximize our strengths and our comprehensive offerings in the environmental and social fields, with the EOH Group providing additional administrative and fiduciary support. Our staff is currently comprised of 35 professional staff and 12 support staff. All professional staff members are well qualified, and as many as 90% have advanced postgraduate qualifications, including PhD, MSc and MA degrees in the biological, social and environmental sciences. In addition, EOH CES has well-developed working relationships with a number of other individual specialist and specialist consulting companies who provide us with expertise in disciplines such as air quality impact assessments, noise impacts, heritage assessments, radiation hazard assessments, groundwater studies and health impact assessments. We have a demonstrated ability to manage EIAs for large and complex projects. This experience was initially gained during the undertaking of integrated environmental management studies, as well as the management of large and complex environmental and social impact assessments. EOH CES has managed numerous large EIAs from pre-feasibility through to operation for international clients in six southern African countries. These have been rigorously reviewed by parties such as the World Bank, MIGA, European Investment Bank, IFC, German Investment Bank (KfW), African Development Bank, BHP Billiton international peer review team, the Dutch Development Bank (FMO).

THE FULL SCOPING AND EIA PROCESS

According to the Environmental Impact Assessment (EIA) Regulations (2017) promulgated under the National Environmental Management Act (NEMA, Act No.107 of 1998 and subsequent amendments) the potential impacts on the environment will have to be assessed in terms of the listed activities. The Proposed Innowind Albany Wind Energy Facility triggers listed activities (Table 1) in terms of the NEMA EIA Regulations (2014 and amended in April 2017) as per Government Gazette R. 983 (Listing Notice 1), R. 984 (Listing Notice 2) and R. 985 (Listing Notice 3), and as such requires the completion of a Full Scoping and Environmental Impact Assessment (EIA) process. The competent authority for this application is the National Department of Environmental Affairs (DEA).

PROJECT DESCRIPTION

The proposed Albany WEF will consist of up to 66 turbines each capable of generating approximately 4.5 Mega Watts (MW) of power. The current layout allows for a maximum generating output of up to 297 MW, but the final design will be reduced based on the outcome of the specialist studies undertaken during the Environmental Impact Assessment Process. The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover an area of approximately 55.39 ha depending on final layout design should the project proceed to the construction phase.

The proposed 267MW Albany WEF will consist of the following infrastructural components:

- ▲ Up to 66 Turbines with a generation capacity of up to 4.5 MW resulting in a nominal power output of up to 297 MW.
- ▲ Turbines with a rotor diameter of up to 150 m, a hub height of up to 150 m and blade length of up to 75 m
- ▲ Internal access roads of between 8 m (during operation) and 14 m (during construction, to be part rehabilitated) wide to each turbine Existing roads will be used as far as possible. However, where required, internal access roads will be constructed between the turbines;
- ▲ 3 Connecting Substations (switching stations)
 - Two Switching stations to connect the WEF to the powerline (powerline to be assessed in separate application)
 - WEF IPP 132/33 kV Substation
- ▲ Foundations of up to 550 m² per turbine;
- ▲ A primary laydown area of approximately 3900 m² adjacent to each turbine;
- ▲ Temporary infrastructure including a site camp and a laydown area of approximately 30 m² per turbine (all to be rehabilitated post construction)
- ▲ 25 m² area for switchgear and/or transformer at each turbine;
- ▲ Medium voltage cabling between turbines and the switching stations, to be laid underground where technically feasible;
- ▲ Substation, Battery Storage and Site Office area of approximately 10.0 ha; and
- ▲ Batching plant, temporary laydown area and construction compound area of approximately 9.0 ha

Turbine Design Specifications

Number of turbines	66
Power output per turbine	4.5 MW
Facility output	297 MW
Turbine hub height	150 m
Turbine rotor diameter	150 m
Turbine blade length	75 m
Turbine tip height	225 m
Turbine platform area	3900 m ²
Turbine road width	14 m to be rehabilitated to 8 m

Table 1: Listed Activities which require Environmental Authorisation.

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION
GN R. 983 (BASIC ASSESSMENT)	11 (i)	The construction of facilities or infrastructure for the transmission and distribution of electricity- (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.
	11 (xii)	The development of: (ii) Infrastructure or structures with a physical footprint of 100 square metres or more. Where such development occurs- (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.
	14	The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic meters.
	19 (i)	The infilling or depositing of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from- (i) A watercourse
	24 (ii)	The development of- (ii) A road with a reserve wider the 13.5 metres, or where no reserve exists where the road is wider than 8 metres.
	28 (i)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (ii) Will occur outside an urban area, where the total land to be developed is bigger than 1 hectares.
	30	Any process or activity identified in term of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
	47	The expansion of facilities or infrastructure for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.
	56 (ii)	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre- (ii) Where no road reserve exists, where the existing road is wider than 8 metres
	1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION
GN R. 984 (FULL SCOPING & EIR)		is 20 megawatts or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs within an urban area.
	9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.
	15	The clearance of an area of 20 hectares or more of indigenous vegetation.
	21	Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.
GN R. 985 (BASIC ASSESSMENT)	4 (b) ii. (ee) (gg)	The development of a road wider than 4 metres with a reserves less than 13.5 metres. (b) In Eastern Cape: ii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area
	10 (b) ii. (ee) (gg)	The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. (b) In Eastern Cape: ii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area
	12 (a) ii.	The clearance of an area of 300 square metres or more of

GOVERNMENT NOTICE	ACTIVITY NUMBER	ACTIVITY DESCRIPTION
		<p>indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(a) In Eastern Cape: ii. Within critical biodiversity areas identified in bioregional plans</p>
	<p>14 (a, c) (xii) (c) ii. (f) (hh)</p>	<p>The development of— (xii) infrastructure or structures with a physical footprint of 10 square metres or more Where such development occurs— (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse.</p> <p>(c) In Eastern Cape: ii. Outside urban areas, in: (f) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area</p>
	<p>18 (b) ii. (ee) (gg)</p>	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</p> <p>(b) In Eastern Cape: ii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed area</p>

POTENTIAL IMPACTS AND BENEFITS

EOH CES will assess the impacts of the Proposed Albany Wind Energy Facility on the environment. Impacts will be assessed for the various alternatives; including the preferred alternative and the "No-Go" alternative. Impacts will be assessed for the planning and design phase, construction phase, operational phase and the decommissioning phase. The direct, indirect and cumulative impacts will be thoroughly assessed for each of the aforementioned phases of development. This section will be updated throughout the process.

HOW CAN YOU BE INVOLVED?

A Public Participation Process (PPP) is being conducted as part of the full Scoping and EIA process for the Proposed Albany Wind Energy Facility. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by the proposed development to provide input into the processes.

The PPP includes, but is not limited to:

- An Advertisement(s);
- Onsite Signage;
- Circulation of the BID (this document) to all Registered I&APs;
- Comments periods;
- A Public Meeting; and
- Review of the reports by all registered I&APs.

If you consider yourself an interested and/or affected person/party, it is important that you become and remain involved in the PPP. In order to do so please follow the steps below in order to ensure that you are continually informed of the project developments and will ensure your opportunity to raise issues and concerns pertaining to the project.

STEP 1: Please register by responding to our notification and invitation, with your name and contact details (details provided on cover page and below). As a registered I&AP you will be informed of all meetings, report reviews and project developments throughout the full Scoping and EIA process.

STEP 2: Register by returning the slip at the back of this document to EOH CES.

STEP 3: Attend any meetings that may be held during the full Scoping and EIA process.

EOH CES is required to engage with all private and public parties that may be interested and/or affected by the Proposed Albany Wind Energy Facility in order to distribute information for review and comment in a transparent manner.

In the same light, it is important for I&APs to note the following:

1. In order for EOH CES to continue engaging with you, please ENSURE that you register on our database by contacting the person below.
2. As the full Scoping and EIA process is regulated by specific review and comment timeframes, it is your responsibility to submit your comments within these timeframes.

Please send your Completed I&AP Registration Forms, Enquiries and/or Comments to:

Caroline Evans

EOH Coastal & Environmental Services

67 African Street, Grahamstown, 6139, Eastern Cape Province

Tel: (046) 622 2364

Email: c.evans@cesnet.co.za

BID



Coastal & Environmental Services

MAP DETAILS

Drawn by: Rosalie Evans
Date: February 2018
EOH Project Code: P40700009

SCALE

1:200 000

TITLE

LOCALITY MAP

PROJECT

INNOWIND ALBANY
WIND ENERGY FACILITY

Proposed WEF Site

National Roads

Roads

Urban Areas

Affected Wards

Albany Ward 1

Albany Ward 6

Albany Ward 9

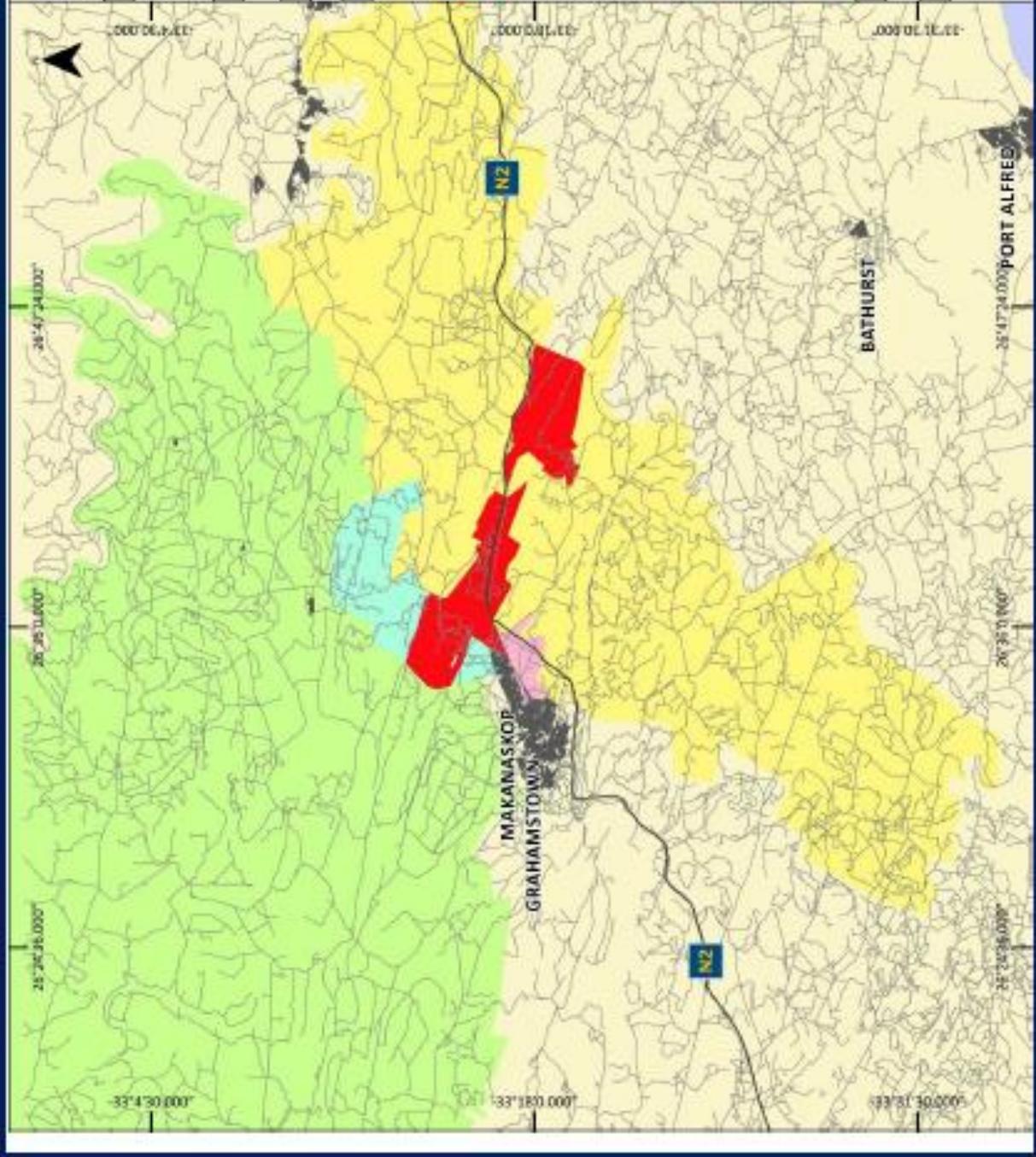
Albany Ward 11

Albany Ward 13

DATUM

WGS84

PREPARED FOR:



I hereby wish to register as an Interested and Affected Party (I&AP) for the Proposed InnoWind Albany Wind Energy Facility, Grahamstown, Eastern Cape

Name & Surname: _____

Reason for Registration: _____

Postal Address: _____

Email Address: _____

Telephone/Mobile Number: _____

Fax Number: _____

My initial comments, issues or concerns are: _____

Other individuals, stakeholders, organisations or entities that should be registered are:

Name & Surname: (1) _____

(2) _____

Reason for Registration: (1) _____

(2) _____

Email Address: (1) _____

(2) _____

Telephone/Mobile Number: (1) _____

(2) _____

Please return details to: **Caroline Evans** | EDH Coastal & Environmental Services | 67 African Street, Grahamstown,

6139, Eastern Cape Province | Tel: (046) 622 2364 | Email: c.evans@cesnet.co.za

13.1.2 BID V2

PROPOSED ALBANY WIND ENERGY FACILITY NEAR MAKHANDA (GRAHAMSTOWN), EASTERN CAPE PROVINCE.

BACKGROUND INFORMATION DOCUMENT (BID) & INVITATION TO COMMENT

AIM OF THIS DOCUMENT

The purpose of this document is to ensure that people that are interested in or affected by the proposed Albany Wind Energy Facility (WEF) are provided with information about the project, the process being followed and provided with an opportunity to be involved in the Scoping and Environmental Impact Assessment (EIA) Process for the Albany WEF near Makhanda, in the Eastern Cape Province.

Registering as an Interested and/or Affected Party (I&AP) provides individuals or groups with the opportunity to contribute ideas, issues, and concerns relating to the project. I&APs also have an opportunity to review all the reports and submit their comments on those reports. All the comments which are received during this process will be included in the final reports, which will then be submitted to the relevant Competent Authority

THE ENVIRONMENTAL CONSULTANTS



Please find Ms Caroline Evans' (contact person) contact details on the last page of this document.

THE APPLICANT

ALBANY WIND POWER (PTY) LTD.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

According to the National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) Environmental Impact Assessment (EIA) Regulations (2014 and subsequent 2017 amendments), the potential impacts on the environment will have to be assessed in terms of the listed activities. These environmental listed activities, initially published on 21st of April 2006, were amended in 2010, 2014 and again on the 7th of April 2017, as Government Notice (GN) Numbers R. 983 (GN R. 327), R. 984 (GN R. 325), and R. 985 (GN R. 324) which define the activities which require, respectively, a Basic Assessment (GN R. 983 and GN R. 985 listed activities which apply to activities with limited environmental impacts), or a Scoping and Environmental Impact Assessment (GN R. 984 listed activities which apply to activities which are significant in extent and duration). The proposed Albany WEF requires a Scoping and EIA Process due to the Listing Notice 2 (GN R. 984) activities. The application for Environmental Authorisation (EA) and associated reports will be submitted to the Competent Authority, the National Department of Environmental Affairs (DEA).

PROJECT DESCRIPTION

Albany Wind Power (Pty) Ltd. plans to develop, construct and operate a Wind Energy Facility (WEF) approximately seven kilometres east of Makhanda in the Eastern Cape Province. The project site is situated in Makana Local Municipality (LM) which forms part of the Sarah Baartman District Municipality (DM). According to the data recorded by Albany Wind Power in the area, this project site appears to have favourable wind conditions to operate a wind farm.

The proposed Albany WEF will consist of up to 66 turbines each capable of generating approximately 4.3 Mega Watts (MW) of power. The WEF will also include a short powerline and switching station in order to connect the WEF to the existing Eskom substation (this powerline will be applied for in a separate environmental application process which will run parallel to WEF application). The current layout allows for a maximum generating output of up to 297 MW, but the final design may be reduced dependant on the outcome of the specialist studies undertaken during this Environmental Impact Assessment Process. The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover a maximum area of approximately 46.19 ha (post rehabilitation) depending on the final layout design should the project proceed to the construction phase.

CES has been appointed by Albany Wind Power as the Environmental Assessment Practitioner (EAP) to conduct the necessary EIA Process and secure the required Environmental Authorisation (EA) for the project in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) EIA Regulations (2014 and subsequent 2017 amendments).

In summary the Albany WEF includes:

- Up to sixty-six (66) turbines with a generation capacity of up to 4.3 MW each resulting in a nominal power output of up to 297 MW;
- The proposed WEF will include turbines with a rotor diameter of up to 170 m, a hub height of up to 130 m and blade length of up to 83 m;
- Internal access roads of between 8 m (during operation) and 14 m (during construction, to be partly rehabilitated) wide to each turbine;
- Existing roads will be used as far as possible. However, where required, internal access roads will be constructed between the turbines;
- Three (3) connecting substations (switching stations):
 - Two (2) Switching stations to connect the WEF to the powerline (powerline to be assessed in separate application); and
 - WEF IPP 132/33 kV Substation.
- Foundations with an area of up to 330 m² for each turbine;
- A primary laydown area of approximately 3 900 m² adjacent to each turbine;
- Temporary infrastructure including a site camp and a laydown area of approximately 30 m² per turbine (all to be rehabilitated post construction);
- A 23 m² area for switchgear and/or transformer at each turbine;
- Medium voltage cabling between turbines and the switching stations, to be laid underground where technically feasible;
- An up to 100 000 m² for the substation, battery storage and site office area; and
- Batching plant, temporary laydown area and construction compound area of approximately 90 000 m².



Figure 1: Locality Map of the Proposed Albany WEF.

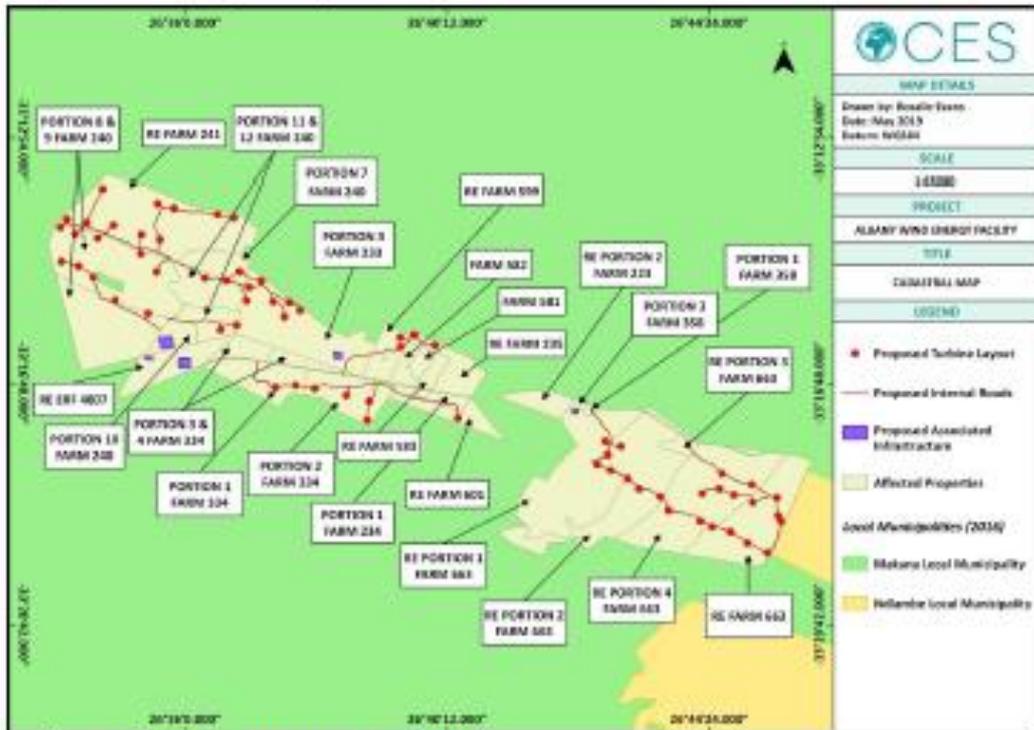


Figure 2: Cadastral Map of the Proposed Albany WEF.

Table 1: Listed Activities which are likely to be triggered by the proposed Albany WEF.

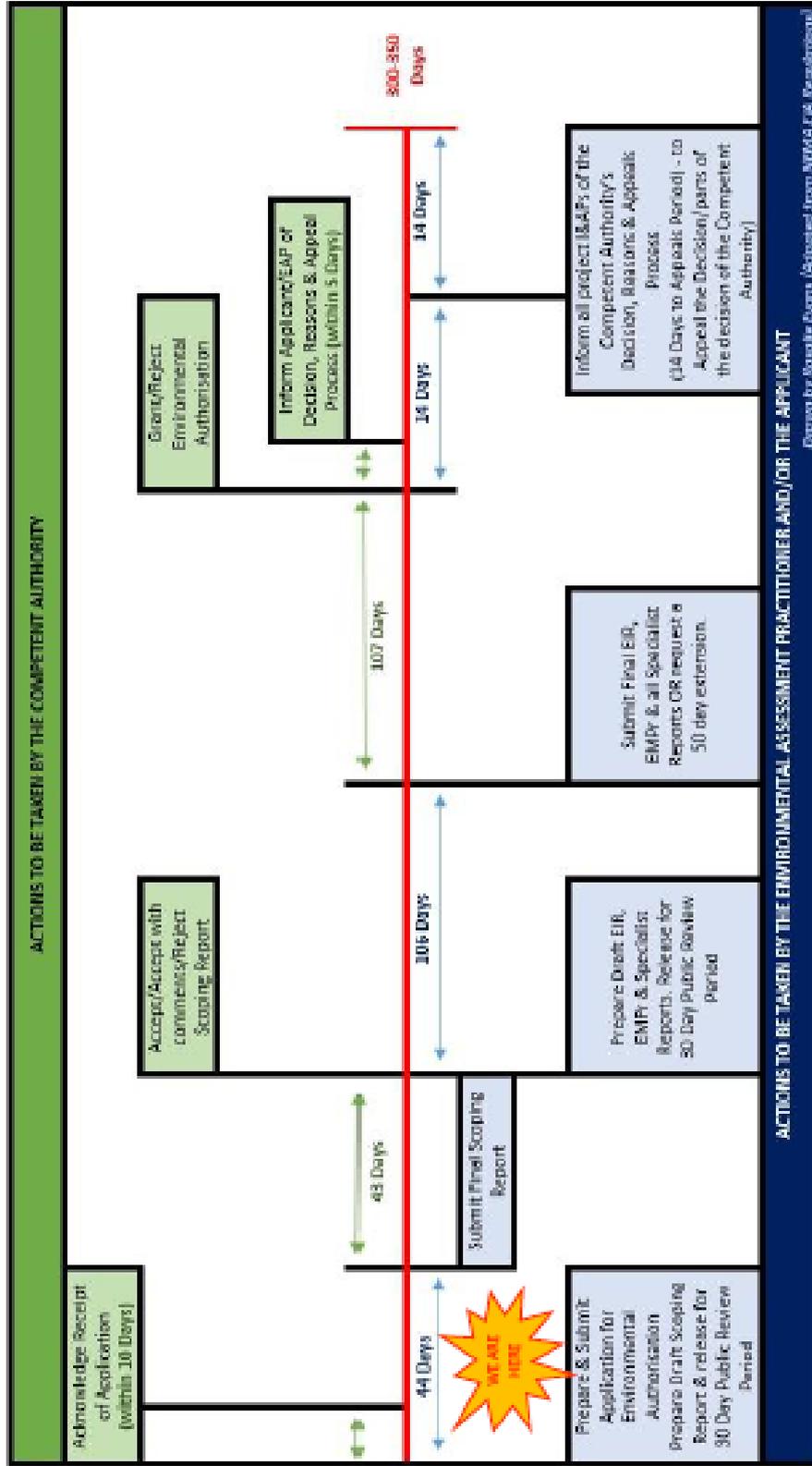
ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
<i>GM R. 983 (Listing Notice 1 - BASIC ASSESSMENT)</i>		
11	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	33kV underground electrical cables will be laid to transmit electricity generated by the wind turbines to the onsite switching stations.
12	The development of— (ii) Infrastructure or structures with a physical footprint of 100 square metres or more. Where such development occurs— (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	This relates to the proposed switching station, laydown areas and construction compound area which may be constructed within 32m of watercourse. The final siting of this infrastructure will be refined throughout the process, during which this listed activity may become redundant.
14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic meters.	This relates specifically to aspects such as storage of transformer oil at the switching station sites and at the maintenance storage facility during operations. Also small volumes of other chemicals may be stored during construction (including diesel and petrol) which may trigger this activity. The final layout will determine the volumes needed on site, but at this stage a rough estimate can be calculated as follows: the construction period is expected to last for approximately 24 months, during this time approximately 175m ³ of chemicals which can be classified as dangerous goods will be used. The operational phase is expected to require approximately 200m ³ of chemicals which can be classified as dangerous goods. This equates to a total of approximately 375m ³ of dangerous goods for the lifespan of the proposed WEF.
19	The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	This relates specifically to low level crossings that may be required during road construction or upgrading throughout the WEF road network.
24	The development of a road— (i) A road with a reserve wider the 13.5 metres, or where no reserve exists where the road is wider than 8 metres.	The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
		footprint of 8m.
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (i) Will occur outside an urban area, where the total land to be developed is bigger than 1 hectares.	The proposed development will entail the rezoning of land from agriculture to special industrial. The total footprint of the proposed WEF (at this stage) will be approximately 46ha in extent (post-mitigation).
47	The expansion of facilities or infrastructure for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.	Existing infrastructure may be used (where technically feasible) as connection points from turbines to switching stations. Where this is the case the footprint of the existing infrastructure may be increased.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (i) Where no road reserve exists, where the existing road is wider than 8 metres	The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational footprint of 8m.
GN R. 984 (Listing Notice 2 – FULL SCOPING AND EIR)		
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.	The proposed Albany WEF will include the construction of approximately 66 turbines with an output capacity of up to 4.5MW each, resulting in a total output capacity of up to 297MW. This wind energy facility is classified as a renewable energy facility.
9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	Connecting powerlines (connecting the turbines to switching stations) may need to be stepped up to more than 275kV in places. This listed activity may become redundant once the final layout has been informed by specialist input.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed development will include the clearing of indigenous vegetation. The total footprint of the proposed WEF (at this stage) will be approximately 55ha in extent (pre-mitigation) and 46ha in extent (post-mitigation).
GN R. 983 (Listing Notice 3 – BASIC ASSESSMENT)		
4 a. i. (ee) (56)	The development of a road wider than 4 metres with a reserves less than 13.5 metres. (a) <u>In Eastern Cape:</u> i. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans	The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
	<p>adopted by the competent authority or in bioregional plans</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.</p>	<p>footprint of 8m.</p> <p>The proposed site is situated in CBA areas. *** (please see note at the end of this table) The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</p>
10 a. i. (cc) (gg)	<p>The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>(a) <u>In Eastern Cape:</u></p> <p>i. Outside urban areas, in:</p> <p>(cc) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans***</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.</p>	<p>This relates specifically to aspects such as storage of transformer oil at the switching station sites and at the maintenance storage facility during operations. Also small volumes of other chemicals may be stored during construction (including diesel and petrol) which may trigger this activity.</p> <p>The final layout will determine the volumes needed on site, but at this stage a rough estimate can be calculated as follows: the construction period is expected to last for approximately 24 months, during this time approximately 173m³ of chemicals which can be classified as dangerous goods will be used. The operational phase is expected to require approximately 200m³ of chemicals which can be classified as dangerous goods. This equates to a total of approximately 373m³ of dangerous goods for the lifespan of the proposed WEF. This will be refined as the layout is refined during the EIA process.</p> <p>The proposed site is situated in CBA areas. *** The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</p>
12 a. ii.	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(a) <u>In Eastern Cape:</u></p> <p>ii. Within critical biodiversity areas identified in bioregional plans.</p>	<p>The proposed development will include the clearing of indigenous vegetation. The total footprint of the proposed WEF (at this stage) will be approximately 43ha in extent.</p> <p>The proposed site is situated in CBA areas. ***</p>
14 ii. a. i. (ff) (hh)	<p>The development of-</p> <p>ii. Infrastructure or structures with a physical footprint of 10 square metres or more</p> <p>Where such development occurs-</p> <p>(a) Within a watercourse;</p> <p>(b) In front of a development setback; or</p> <p>(c) If no development setback has been</p>	<p>This relates to the proposed switching station, laydown areas and construction compound area which may be constructed within 32m of watercourse. The final siting of this infrastructure will be refined throughout the process, during which this listed activity may become redundant.</p> <p>The proposed site is situated in CBA areas. *** The</p>

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	DESCRIPTION OF PROJECT ACTIVITY THAT TRIGGERS LISTED ACTIVITY
	<p>adopted, within 32 metres of a watercourse, measured from the edge of a watercourse.</p> <p>(a) <u>In Eastern Cape:</u></p> <p>i. Outside urban areas, in:</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.</p>	<p><i>proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</i></p>
<p>18 a. i. (ee) (gg)</p>	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</p> <p>(a) <u>In Eastern Cape:</u></p> <p>i. Outside urban areas, in:</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.</p>	<p><i>The road network will need to be developed and upgraded (using all technically feasible existing farm roads where possible) in order to ensure that the delivery of turbine parts is possible and to ensure that maintenance teams are able to access each individual turbine throughout the lifespan of the project. Roads will be 14m wide during the construction phase and will be rehabilitated to have a final operational footprint of 8m.</i></p> <p><i>The proposed site is situated in CBA areas. *** The proposed WEF is located adjacent to Thomas Baines Nature Reserve: Beggars Bush Section.</i></p>
<p>***NOTE: Please note that the newly revised and updated ECBP has not been formally gazetted at this stage, but it is likely to be formalised within the next few months. Due to the fact that this will now be a formal Biodiversity Plan for the Eastern Cape we have included it as part of the listed activities</p>		

THE SCOPING AND EIA PROCESS



POTENTIAL IMPACTS AND BENEFITS

The potential impacts and benefits will be identified during the Scoping Phase and assessed in detail in the Environmental Impact Report (EIR) and associated specialist reports. The initial issues include, but are not limited to:

- ✓ Visual and noise impacts;
- ✓ Ecological impacts (including flora, fauna and surface water);
- ✓ Avifaunal (bird) impacts;
- ✓ Chiroptera (bat) impacts;
- ✓ Archaeological impacts;
- ✓ Palaeontological impacts;
- ✓ Agricultural impacts; and
- ✓ Socio-economic impacts.

HOW CAN YOU BE INVOLVED?

A Public Participation Process (PPP) is being conducted as part of the EIA Process for the Proposed Albany WEF. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by the proposed development to provide input into the processes. The PPP includes, but is not limited to, the placement of advertisements, onsite signage, and circulation of the BID (this document) to all registered I&APs, comments periods, a public meeting (if required) and the review of the Draft Scoping Report as well as the Draft EIR, associated specialist reports and the Environmental Management Programme (EMPr) by registered I&APs.

If you consider yourself an interested and/or affected person/party, it is important that you become and remain involved in the PPP. To do so, please follow the steps below:

1. **STEP 1:** Please register by responding to our notification and invitation, with your name and contact details (details provided below). As a registered I&AP, you will be informed of all report review periods and project developments throughout the EIA Process of the Proposed Albany WEF.
2. **STEP 2:** Register by contacting Ms Caroline Evans with your name and contact details via post, e-mail, phone or fax.

CES is required to engage with all private and public parties that could be interested and/or affected by the Albany WEF in order to distribute information for review and comment in a transparent manner.

In the same light, it is important for I&APs to note the following:

1. For CES to continue engaging with you, please ENSURE that you register on our database by contacting Ms Caroline Evans.
2. As the EIA Process is regulated by specific review and comment timeframes, it is your responsibility to submit your comments within these timeframes.

Please contact Ms Caroline Evans to register as an I&AP for the Albany WEF, for enquiries and/or for the submission of your written comments:

CONTACT PERSON:	Ms Caroline Evans
COMPANY:	CES
ADDRESS:	67 African Street, Grahamstown, 6140
TELEPHONE NUMBER:	+27 (0)46 622 2364
FAX NUMBER:	+27 (0)46 622 6564
E-MAIL ADDRESS:	c.evans@cesnet.co.za
WEBSITE:	www.cesnet.co.za

13.2 ADVERTISEMENT

EOH

Coastal & Environmental Services

**NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT:
ALBANY WIND ENERGY FACILITY, GRAHAMSTOWN,
EASTERN CAPE**

Notice is hereby given in terms of Regulation 41 (2) published in Government Notice No. 982 under Chapter 6 of the National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) Environmental Impact Assessment (EIA) Regulations (2014, and subsequent 2017 amendments) of the submission of an application to the national Department of Environmental Affairs (DEA) for Environmental Authorisation (EA).

Albany Wind Power (Pty) Ltd. is a Special Purpose Vehicle (SPV) created by InnoWind (Pty) Ltd. InnoWind's development and operating expertise has been acquired through its French parent company, EDF Energies Nouvelles, which is the renewable energy arm of the French power utility EDF.

Albany Wind Power (Pty) Ltd, plans to develop, construct and operate a Wind Energy Facility (WEF) approximately seven kilometres (7 km) east of Grahamstown in the Eastern Cape Province. The proposed Albany WEF will consist of up to sixty-six (66) wind turbines with an output capacity of between 2 MW and 4.5 MW per turbine. The total output of the proposed Albany WEF will be up to 297 MW. This will be achieved by having up to 66 turbines with a maximum output capacity of 4.5 MW per turbine. In addition to the turbines, the facility will include roads, underground and/or overhead electrical cabling linking turbines, three on-site switching stations with potential battery storage capacity and small control room, and an overhead grid connection powerline (33 kV) to the existing Eskom electrical grid.

We hereby encourage all Interested and/or Affected Parties (I&APs) to register on our I&AP database, by contacting the person below, so that EOH Coastal & Environmental Services can engage with you throughout the EIA process.

Please note that the Draft Scoping Report, for the proposed Albany WEF, will be available for a thirty (30) public review period from the 14th of June until the 16th of July 2018. During this period, a hard copy of the report will be available for review at the Grahamstown Public Library.

For more information, registration as an I&AP or submission of written comments contact via post, fax, phone or e-mail: **Ms Caroline Evans**: 67 African Street, Grahamstown, 6139 |
Fax: +27 (0)46 622 6564 | Tel: +27 (0)46 622 2364 | E-mail: c.evans@cesnet.co.za

13.3 SIGNAGE

SIGN 1 (R67 town and provincial intersection)



SIGN 2 (R67 and N2 intersection)



13.4 INITIAL NOTIFICATION

Initial Notification was circulated as part of an informal PPP process. All stakeholders were sent a BID (V1) and I&APs were invited to register to be part of the I&AP Database. This, combined with a newspaper adverts and three site notifications served as a gathering of I&APs for the project.

All documentation from the formal PPP process, which starts with the submission of the Application for Environmental Authorisation, will be included in Appendix A as part of the process.

To  Rosalie Evans

Bcc Charmaine.Mostert@dedea.gov.za; Andries.struwig@deaet.ecape.gov.za; Dayalan.Govender@dedea.gov.za; Gerry.Pienaar@dedea.gov.za; BloemM@dws.gov.za; NokoyoT@dwa.gov.za; Brenda.Ngebulana@dmr.gov.za; Zimkita.Tyala@dmr.gov.za; thokob@daff.gov.za; MashuduMa@daff.gov.za; mokgadi.mathekgana@energy.gov.za; eddie.leach@eskom.co.za; GeerinJH@eskom.co.za; NicolM@eskom.co.za; Wayne.Erlank@ecpta.co.za; leandri.gerber@ecpta.co.za; brian.reeves@ecpta.co.za; mtoto.zake@ecpta.co.za; asanda.sontele@ecpta.co.za;

 Message  Albany Wind Energy Facility_Initial LoN.pdf (583 KB)  Background Information Document_V1.pdf (2 MB)

Dear Stakeholder, Landowner, Surrounding Landowner or Interested & Affected Party

The attached letter serves as a notification of the start of the Environmental Impact Assessment Process for the proposed Albany Wind Energy Facility situated near Grahamstown in the Eastern Cape. The Background Information Document (BID) has also been attached for your perusal.

The Draft Scoping Report will be available for public review from the 20th June until the 20th July 2018, you will receive another letter stating that this process has started and to inform you of where to access the documentation. Please could you be so kind as to respond to this email and register as part of the process should you wish to receive further correspondence.

Please do not hesitate to contact me should you have any queries.

Kind regards
Caroline

 **EOH**

Caroline Evans
Senior Environmental Consultant
EOH Coastal & Environmental Services
Leaders in Environmental and Social Advisory Services
67 African Street
Grahamstown | Eastern Cape | South Africa
tel: +27 (46) 622 2364 | fax: +27 (46) 622 6564
c.evans@cesnet.co.za | www.eoh.co.za | www.cesnet.co.za
Consulting | Technology | Outsourcing

13.5 DRAFT SCOPING NOTIFICATION

Please find all proofs of the distribution of the Draft Scoping Report and all Comments received during the Draft Scoping Report review period here within.

DRAFT

13.6 PPP DATABASE

13.6.1 STAKEHOLDER DATABASE

STAKEHOLDER DATABASE	
Stakeholder	Contact Person
Department of Environmental Affairs	Ms Zamalanga Langa
Department of Environmental Affairs: Biodiversity & Conservation	Mr Shonisani Munzhedzi
	Mr Simon Maletle
Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)	Mrs Charmaine Struwig
	Mr Andries Struwig
	Mr Dayalan Govender
	Mr Gerry Pienaar
Department of Water & Sanitation (DWS) (Eastern Cape)	Ms Marisa Bloem
	Mr Thabo Nokoyo
Department of Mineral Resources (DMR) (Eastern Cape)	Ms Brenda Ngebulana
	Ms Zimkita Tyala
Department of Agriculture Forestry & Fisheries (DAFF)	Ms Thoko Buthelezi
	Ms Mashudu Marubini
Department of Energy	Ms Mokgadi Mathekgana
Eskom	Mr Eddie Leach
Eskom: Renewable Energy	Mr John Geeringh
	Mr Wayne Erlank
Eastern Cape Parks and Tourism Agency (ECPTA)	Ms Leandri Gerber
	Mr Brian Reeves
	Mr Patrick Zake
	Ms Shanè October
	Ms Asanda Sontsele
Eastern Cape Development Corporation (ECDC)	Mr Rory Haschick
Sarah Baartman District Municipality: Municipal Manager	Mr Ted Pillay
Makana Local Municipality: Acting Municipal Manager	Mr Ted Pillay
Makana Local Municipality: Mayor	Ms Riana Meiring
Makana Local Municipality: Technical & Infrastructural Services	Mr Myalato
Makana Local Municipality: Land-use	Mr Reneir van der Merwe
Makana Local Municipality: Environmental	Mr Johanne Esterhuizen
Makana LM Ward 1 Councillor	ClIr Bruitjies
Makana LM Ward 2 Councillor	ClIr Clark
Makana LM Ward 3 Councillor	ClIr Fargher
Makana LM Ward 4 Councillor	ClIr Fatyi
Makana LM Ward 5 Councillor	ClIr Gaga
Makana LM Ward 6 Councillor	ClIr Gaushe
Makana LM Ward 7 Councillor	ClIr Gojela

Makana LM Ward 8 Councillor	<i>Clr Holm</i>
Makana LM Ward 9 Councillor	<i>Clr Jackson</i>
Makana LM Ward 10 Councillor	<i>Clr Khubalo</i>
Makana LM Ward 11 Councillor	<i>Clr Louw</i>
Makana LM Ward 12 Councillor	<i>Clr Madyo</i>
Makana LM Ward 13 Councillor	<i>Clr Masoma</i>
Makana LM Ward 14 Councillor	<i>Clr Matyumza</i>
Makana LM Ward 15 Councillor	<i>Clr Matyumza</i>
Makana LM Ward 16 Councillor	<i>Clr Meyer</i>
Makana LM Ward 17 Councillor	<i>Clr Moya</i>
Makana LM Ward 18 Councillor	<i>Clr Mtwa</i>
Makana LM Ward 19 Councillor	<i>Clr Nase</i>
Makana LM Ward 20 Councillor	<i>Clr Nhanha</i>
Makana LM Ward 21 Councillor	<i>Clr Pieters</i>
Makana LM Ward 22 Councillor	<i>Clr Qotoyi</i>
Makana LM Ward 23 Councillor	<i>Clr Sakata</i>
Makana LM Ward 24 Councillor	<i>Clr Seyisa</i>
Makana LM Ward 25 Councillor	<i>Clr Sodladla</i>
Makana LM Ward 26 Councillor	<i>Clr Vara</i>
Makana LM Ward 27 Councillor	<i>Clr Xonxa</i>
SALGA Eastern Cape	<i>Ms Aseza Dlanjwa</i>
	<i>Mr Zamikhaya Mpulampula</i>
	<i>Ms Zona Cokie</i>
Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	<i>Mr Lennox Zote</i>
	<i>Mr Sello Mokhanya</i>
South African Heritage Resources Agency (SAHRA)	<i>Admin</i>
Telkom	<i>Mr Raymond Couch</i>
Sentech	<i>Ms Alishea Viljoen</i>
Vodacom	<i>Mr Andre Barnard</i>
MTN	<i>Mr Krishna Chetty</i>
	<i>Mr Hugo Dippenaar</i>
	<i>Mr Rudi Liebenberg</i>
	<i>Mr Wiaan Vermaak</i>
	<i>Mr Dirk Van Der Walt</i>
Cell C	<i>Mr Joshua Engelbrecht</i>
	<i>Ms Lizelle Stroh</i>
	<i>Mr Dylan Fryer</i>
Civil Aviation Authority (CAA)	<i>Ms Nanna Gouws</i>
Air Traffic and Navigation Services (ATNS)	<i>Mr Daniel Marnewick</i>
Roads (SANRAL/Public Works)	<i>Dr Hanneline Smit-Robinson</i>
BirdLife South Africa	<i>Ms Samantha Ralson</i>
BirdLife South Africa: Birds and Renewable Energy Manager	<i>Mr Simon Gear</i>
BirdLife South Africa: Policy & Advocacy Manager	<i>Ms Yolán Friedman</i>
Endangered Wildlife Trust: CEO	<i>Dr Harriet Davies-Mostert</i>
Endangered Wildlife Trust: Head of Conservation Science	

Endangered Wildlife Trust: African Crane Conservation Programme Manager	Ms Kerryn Morrison
Endangered Wildlife Trust: African Crane Conservation Programme Field Officer	Ms Glenn Ramke
Endangered Wildlife Trust: Wildlife & Energy Programme	Mr Lourens Leeuwner
WESSA EC Regional Representatives	Ms Jenny Gon Ms Eileen Shepherd
Wildlife Ranching RSA	Ms Ankie Stroebel
East Cape Game Management Association	Admin
INDALO	Ms Vanessa Collett

13.6.2 LANDOWNER DATABASE

LANDOWNER DATABASE	
Landowner	Contact Person
Valery Audrey Roberts / Leonard Roberts	Leonard Roberts
Adrian Michael Moss	Adrian Moss
Fanisile Vuso	Fanisile Vuso
Rowland Geoffrey Tarr	Rowland Tarr
Makana Municipality	Riana Meiring
Peter George Wylie	Peter Wylie
Antonie Johannes Diedericks	Antonie Diedericks
Barry Albert Sweetman	Barry Sweetman
Lorenzo & Hayle Doyle	Lorenzo Doyle
Gaynor Isabel Ferreira	Anton Ferreira
Willie Erasmus	Willie Erasmus
Emlanjeni CPA	Xoliswa Matole
Kamvulethu CPA	Vuyani Hanisi
Masibambane CPA	Bhulukazi Peter
Masizakhe CPA	Zola Sintwa

13.6.3 SURROUNDING LANDOWNER DATABASE

SURROUNDING LANDOWNER DATABASE	
Landowner	Contact Person
Amaraka INV NO 6 PTY LTD	Mr Jo van Zyl & Mr Sean van Zyl
Sarah Baartman District Municipality	Mr Ted Pillay
Leon van Rensburg	Mr Leon van Rensburg
RSA Government (EC Department Rural Development & Land Reform)	Mr Patrick Maqabangqa (Cacadu District)
Makana Local Municipality	Ms Rianna Meiring
CSA Properties (Pty) Ltd.	Mr Dino David Couest

Grahamstown Brick (Pty) Ltd.	Mr Allan Mark Cawood
Kwapatu Farmers CC	Mr Zolile Million Bester
Tracey Anne Georgiou	Ms Tracey Anne Georgiou
Hooleton Park CC	Ms Anastasia Naidoo
Le Cateau Farming (Pty) Ltd.	Mr Christopher Bush
Graham Partington	Mr Graham Partington

13.6.4 REGISTERED I&AP DATABASE

REGISTERED INTERESTED & AFFECTED PARTIES (I&APs)	
I&AP	Affiliation
Mr Tim Bull	Grahamstown Residents' Association
Mr Philip Machanick	
Ms Sally Price-Smith	Private
Glenn	Wessons
Ms Laura Bannatyne	Private
Mr Peter Ellis	MBB Consulting Engineers
Mr Pravesh Nosib	MBB Consulting Engineers
Mr Angus Sholto-Douglas	Kwande Private Game Reserve
Mr Graeme Mann	Kwande Private Game Reserve
Proff Geoff Antrobus	Private
Mr Steven Lang	Private
Mr Harry Owen	Private
Mr Mark Palmer	Amakhala Game Reserve
Mr Leslie Ter Morshuizen	AquaCulture Innovations
Mr Tim Kinnell	Amatola Industries CC
Mr Roy Hagemann	Amatola Industries CC
Ms Leticia Greyling	Private
Ms Roxanne Mustard	Leads 2 Business
Ms Patsy Scherman	Scherman Colloty & Associates
Mr Ruwayne John	Strutfast
Mr Jonathan Visser	Integrated Wind Power (Pty) Ltd.
Mr Peter Sulter	MEH Sulter & Son Inc.
Ms Veronique Fyfe	G7 Renewable Energies (Pty) Ltd
Ms Karen de Bruyn	G7 Renewable Energies (Pty) Ltd
Mr Nikhil K V N	Global Data
Mr Byron Sparg	
Ms Arlene Sparg	
Ms Danica Stockigt	Glenmelville Safaris
Ms Dawn Sparg	
Mr Nolan Sparg	
Ms Ina Fölscher	Private

Mr Colin Coetzee	<i>Game 4 Africa</i>
Mr Llewellyn Poultney	<i>Lanka Safaris</i>
Mr Ryan David-Andersen	<i>Arcus Consulting</i>
Mr Joshua Parsons	<i>Rhodes Journalism Student</i>
Mr Hylton Newcombe	<i>Private</i>
Mr Terry Stewart	<i>Bucklands Private Game Reserve</i>
	<i>Emerald Sky Safaris</i>
Mr Aiden Sparrow	<i>Trumpeters Drift</i>
Mr Basil Peinke	<i>Ecca Pass Safaris</i>
Ms Bevan Peinke	
Mr Sean van Zyl	<i>Fort Governors Estate</i>
Mr Hennie Brink	<i>No details supplied</i>
Mr Charles Timm	<i>Huntshoek</i>
Mr Kevin Bates	<i>Elshaddai Game Lodge</i>
Mr Lionel Wicks	<i>Lysso Safaris</i>
Longwood Trust	<i>No details supplied</i>
Mr Greg Dixon	<i>Majeje Safaris</i>
Mr Murray Crous	<i>Settlers Safaris</i>
Mr Nico Fick	<i>Lakeside</i>
Mr Peter Wood	
Mr Rudi Venter	<i>The Hills Game Estate</i>
Mr Xolani Ngcikhwe	
Ms Weliswa Jantjies	<i>Makana Business Chamber</i>

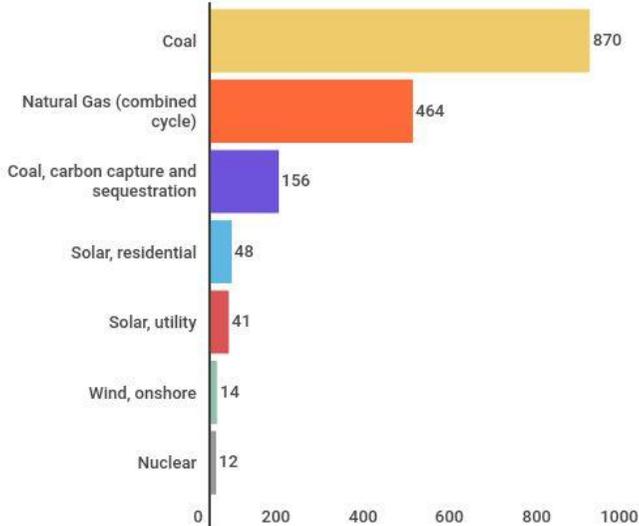
13.7 ISSUES & RESPONSE TRAIL

Please find here within the issues and response trail (IRT). This table is up to date as of the 29th July 2019 (end of Draft Scoping Report PPP). This table will be updated with all official correspondence throughout the PPP lifespan of the proposed Albany WEF.

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE								
<p>As per Appendix A (13.5), a Comment and Objection was received from Mr Andre van der Spuy on behalf of various clients. The letter raises the following issues:</p> <p>Points 1-3 present the reviewer and the purpose of the Comment and Objection letter, as per Appendix A (13.5)</p> <p>4. From brief review of the DSR it is evident that the EAP is immediately engaged in an Applicant-favored approach in which every opportunity is used to punt the proposed AWEF and wind farms in general, even using outright fabrication if and where possible. For instance, a ludicrous claim is made (DSR, Sect. 6.5.4) to the effect that operating wind farms in South Africa are responsible for offsetting 3.75 million tons of CO₂ emissions. The exact source of these 3.75M offset tons is not identified – this is because there is none. Basic scientific principle dictates that wind farms are net producers of CO₂ emissions and especially when considered in the context of all the necessary components required to make them functional (i.e. <35% efficient), such as the necessary 100% back-up fossil fuel energy, they are in true fact mass producers of carbon emissions. This fact is borne out in the real world examples where high penetration of renewable energy has been undertaken such as Germany’s “Energiewende” which has not halted the continued increase of carbon emissions (but has resulted in some of the most expensive electricity in the world). In other instances references and facts are “cherry-picked” by the EAP to suit the argument of the EAP and to advance (unfairly) the interests of the Applicant. This is done at the expense of the environment, the local affected community and our clients. This objection and comment will point out just some examples during the course of its representation.</p>	<p>Mr Andre van der Spuy</p> <p>ANDRE VAN DER SPUY ENVIRONMENTAL CONSULTANTS</p> <p>19/07/2019</p> <p>[SUBMITTED ON BEHALF OF THE FOLLOWING CLIENTS: Mr Angus Sholto-Douglas; Mr Nolan Sparg; Mr Colin Coetzee; Mr Terry Stewart; Mr Aiden Sparrow; Mr Basil Peinke; Ms Bevan Peinke; Mr Sean van Zyl; Mr Hennie Brink; Mr Charles Timm; Mr Kevin Bates; Mr Lionel Wicks; Longwood Trust; Mr Greg Dixon; Mr Murray Crous; Mr Nico Fick; Mr Peter Wood; and Mr Rudi Venter]</p>	<p>4. The document from which these figures have been derived is referenced in the DSR as IPP Quarterly Report, September 2016. This document is freely available on the IPP website at: https://www.ipp-projects.co.za/Publications</p> <p>Renewable Energy as a means of mitigating climate change is of national and provincial importance as discussed and referenced in Chapter 3 of the DRS and FSR.</p> <p>Studies which have been undertaken by highly qualified energy scientists would dispute the fact that wind farms are net producers of CO₂ emissions. A literature review undertaken by Garvin A. Heath, a senior scientist at NREL, and colleagues concluded (after reviewing the scientific literature) that wind energy produces about 11g of CO₂ per kilowatt-hour of electricity generated, compared to approximately 980g CO₂/kWh for coal and roughly 465g CO₂/kWh for natural gas.</p> <p>“It’s true that wind power isn’t a zero emission energy source. Greenhouse gas emissions are produced when wind turbines are manufactured, built, maintained and decommissioned. But the “life cycle greenhouse gas emissions from solar, wind, and nuclear technologies are considerably lower and less variable than emissions from technologies powered by combustion-based natural gas and coal,” says the NREL. (Factcheck.org, 2018).</p> <table border="1"> <thead> <tr> <th>Energy</th> <th>Carbon Footprint (g CO₂/kWh)</th> </tr> </thead> <tbody> <tr> <td>Wind</td> <td>11</td> </tr> <tr> <td>Coal</td> <td>980</td> </tr> <tr> <td>Natural gas</td> <td>465</td> </tr> </tbody> </table>	Energy	Carbon Footprint (g CO ₂ /kWh)	Wind	11	Coal	980	Natural gas	465
Energy	Carbon Footprint (g CO ₂ /kWh)									
Wind	11									
Coal	980									
Natural gas	465									

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE														
<p style="text-align: center; font-size: 48px; opacity: 0.3;">EAP</p>		<table border="1"> <tr> <td>Nuclear</td> <td>12</td> </tr> <tr> <td>Solar</td> <td>14 – 45</td> </tr> <tr> <td>Hydro</td> <td>7</td> </tr> <tr> <td>Ocean</td> <td>8</td> </tr> <tr> <td>Geothermal</td> <td>11.3 – 47</td> </tr> <tr> <td>Biomass</td> <td>43</td> </tr> <tr> <td colspan="2">Source: Research by NREL and BNL</td> </tr> </table>	Nuclear	12	Solar	14 – 45	Hydro	7	Ocean	8	Geothermal	11.3 – 47	Biomass	43	Source: Research by NREL and BNL	
		Nuclear	12													
		Solar	14 – 45													
		Hydro	7													
		Ocean	8													
		Geothermal	11.3 – 47													
		Biomass	43													
Source: Research by NREL and BNL																

Estimated Carbon Footprints



grams of CO2 per kilowatt of electricity produced

Source: Joshua D. Rhodes, University of Texas at Austin, Energy Institute, 2017

This article has presented a methodology for determining the greenhouse gas (GHG) emissions displacement of wind power. Based on operational system data, it avoids the limitations of similar analyses based on system models and does not impose any

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>5. Under Section 3 of the DSR extensive motivation of renewable energy and wind farms is undertaken by the EAP using the claimed threat of climate change as a main source of justification. The EAP clearly is not a climate scientist and has no understanding of this very complex and often misunderstood</p>		<p>assumptions about dispatch. It also takes into account the efficiency penalties of operating conventional thermal generation at part load. This can be applied to any system over any time-frame to find more accurate estimates to be used in carbon payback and net emissions reduction calculations, which are required by renewable energy developers, planners and policy makers.</p> <p>This methodology was applied to the electricity system in Great Britain, analysing historical metered and market data from 2009 to 2014. For most years the marginal emissions displacement was significantly higher (21% in 2010) than the system-average emissions published by the Department for Energy and Climate Change, most commonly applied in carbon payback and emissions reduction calculations (Ricardo-AEA, 2016). This suggests that emissions displacement has historically been underestimated and published carbon payback periods are generally pessimistic, which is of particular significance for carbon abatement cost estimates and for the viability of wind farms built on peatlands.</p> <p>Finally, this work also found that the marginal emissions displacement of wind is very similar to the marginal emissions of changes in demand, demonstrating that wind power is almost as technically effective as demand-reduction interventions at reducing emissions from generation. This supports policies that encourage increasing wind capacity as a means of reducing GHG emissions.</p> <p><u>Reference:</u> <i>Thomson, R. C., Harrison, G.P. & Chick, J.P. (2017) Marginal greenhouse gas emissions displacement of wind power in Great Britain. Energy Policy Volume 101, February 2017, Pages 201-210.</i></p> <p>5. The EAP, Dr Alan Carter, is a member of Environmental Assessment Practitioners Association of South Africa (EAPASA); South African Council for Natural Scientific Professions (SACNASP); and International Association for Impact Assessment (IAIA) under which he has taken oaths to undertake his duties as an EAP as per their</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>field. The EAP rather relies on the grossly superficial and populist understanding of climate change and its associated myths, one of which regards wind farms and industrial-scale renewable energy projects as a solution to the problem. In response is provided the comment of a genuine expert, Dr. John Ledger (Associate Prof. of Energy and Environment; pers. com.);</p> <p><i>“At the heart of the problem is the wishful notion that renewable energy can somehow save the planet from ‘catastrophic anthropogenic global warming’. At a local level, the notion that South Africa should involve itself in this futile gesture is laughable, given that our industries contribute around 1% of global CO₂ emissions. The very notion of CAGW is itself a farce, a man-made pseudo-religious fabrication easily discredited by rational analysis.”</i></p> <p>But Dr Ledger does not stop there in his professional comment on wind energy as a means by which to combat climate change, he also states;</p> <p><i>“Electricity from wind is unscheduled, unreliable and at best only available for 30% of the time. South Africa contributes around 1% of global industrial Carbon Dioxide emissions. Whatever we do in this country to reduce our emissions will have a miniscule, unnoticeable impact on the temperature of the planet, even if you believe the ridiculous notion that a gas that constitutes 0.04% of the atmosphere could be a magical knob that can turn global temperatures up or down.”</i></p> <p>The EAP, Dr. Carter, is a botanist and accountant. He is best advised to stick to his trained discipline (which incidentally excludes also practicing as an EAP) instead of reinventing himself as a climate specialist, an EAP and even a visual impact specialist. It is noted that in fact Ms. R. Evans and Ms. C. Evans are more properly qualified than Dr, Carter to act as the EAP.</p>		<p>stringent criteria. Dr Alan Carter has vast climate change experience, his experience includes but is not limited to:</p> <ul style="list-style-type: none"> ▪ Providing specialist peer review services for the National Department of Environmental Affairs (DEA) relating to climate change impact assessments for large infrastructure projects (2017-2018). ▪ Conducting a climate change impact assessment for a proposed coal-fired power station in Africa (2017-2018). ▪ Participating in the development of a web-based Monitoring & Evaluation (M&E) system for climate change Mitigation and Adaptation in South Africa for the National DEA (2015-2016). ▪ Managing the project for the development of a Climate Change Strategy for the Buffalo City Metro Municipality (2013). ▪ Managing projects to develop climate change strategies for two district municipalities in the Eastern Cape Province (2011). ▪ Conducting specialist carbon stock and greenhouse gas emissions impact and life cycle assessment as part of the Environmental, Social and Health Impact Assessment for a proposed sugarcane to ethanol project in Sierra Leone (2009 - 2010) and a proposed Jatropha bio-diesel project in Mozambique (2009 - 2010). ▪ Managing the project to develop the Eastern Cape Province Climate Change Strategy (2010). ▪ Managing the project to develop a Transnet National Ports Authority Climate Change Risk Strategy (2009) ▪ Participating in the project to develop a Renewable Energy roadmap for the East London Industrial Development Zone (ELIDZ) (2013). ▪ Participating in a project for the East London Industrial Development Zone (ELIDZ) and Eastern Cape Government to prepare a Renewable Energy Strategy (2009). ▪ Contributed to the development of Arthur Andersen LLP’s International Climate Change and Emissions Trading Services (2001). ▪ Conducted carbon credit (Clean Development Mechanism - CDM) feasibility assessment for a variety of renewable energy projects ranging from biogas to solar PV.

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
		<ul style="list-style-type: none"> ▪ Participated in the preparation of CDM applications for two solar PV projects in the Eastern Cape. <p>In terms of Dr Alan Carter’s suitability as an EAP for a renewable energy facility, the following list of relevant experience refers. Dr Alan Carter has been the EAP on numerous renewable energy EIAs within the Eastern Cape (and neighbouring provinces), examples include:</p> <ul style="list-style-type: none"> ▪ Chaba I Wind Energy Facility (EC); ▪ Great Kei Wind Energy Facility (EC); ▪ Dassiesridge Wind Energy Facility (EC); ▪ Scarlet Ibis Wind Energy Facility (EC); ▪ Lushington Park 100 MW Wind Energy Facility (EC); ▪ Thomas River Renewable Energy Facility (EC); ▪ Qunu Wind and Solar Facility (EC); ▪ Qumbu Wind and Solar Facility (EC); ▪ Nqamakwe Wind and Solar Facility (EC); ▪ Ncora Wind and Solar Facility (EC); ▪ Peddie Wind and Solar Facility (EC); ▪ Thezi-Langa 50MW Solar PV Facility (EC); ▪ Langa 100MW Solar PV Facility (EC); ▪ Gehrlicher Ikwhezi 10 MW Solar PV Facility (EC); ▪ Umsobomvu Wind Energy Facility (EC and NC); ▪ Boulders Wind Energy Facility (WC); and ▪ Waaihoek Wind Energy Facility (KZN). <p>As per the above list of relevant experience, Mr van der Spuy’s comments regarding the qualifications and experience of Dr Alan Carter as an EAP are regarded as subjective, unsubstantiated, opinion-based and defamatory. CES will not be drawn into Mr van der Spuy’s personal defamatory statements of its employees and will leave DEA to determine whether or not members of this team are suitably qualified to undertake this assessment. All comments regarding the Draft Scoping Report and proposed EIR Scope of Works will be addressed.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>6. Notwithstanding the above, it is also noted in the DSR that the EAP, Dr. Carter, intends to conduct a climate impact assessment himself (as a so-called “General Impact”). This will be totally unacceptable since the EAP clearly knows very little about the science and discipline of so-called climate change and is certainly unqualified to undertake the necessary impact assessment. Instead a proper climate scientist will be required to be appointed. Gross, unsubstantiated and incorrect assumptions regarding the benefits of wind farms in terms of climate change mitigation will be opposed by a proper expert, if necessary.</p> <p>7. The Plan of Study of Impact Assessment must be expanded to include a proper professional climate impact assessment. We reserve our right to comment on the terms of this required expert study given the alarming level of incompetence and bias revealed in the DSR.</p> <p>8. The climate impact assessment will have to take into account the significant carbon sequestration value of our clients properties in so far as these are managed by them in order to achieve the most natural state possible (some are registered Protected Areas) and which is arguably of great value in the carbon cycle. Should the clients operations be damaged such benefits may ultimately be lost and any resultant carbon emissions would need to be attributed to the account of the wind farm.</p>		<p>The EAP finds Mr van der Spuy’s reference to Dr Ledger’s article in contradiction to some of the points raised regarding Climate Change (such as points 7 and 8 of this letter). The EAP does not agree that an entire Climate Change specialist report is necessary, based on the fact that the positive contribution of wind as an alternative to coal powered energy is a single impact (based on available South African data) in the greater scheme of over 50 impacts that are likely to be documented in the EIR (estimate based on previous WEF experience) across a range of specialist fields (as per section 10.3 of this report).</p> <p>6. Please note that the DSR does not state that Dr Alan Carter will be conducting a Climate Impact Assessment. The contribution of wind as an alternative to coal energy is a single impact which will be listed as a “general impact”. It is the opinion of the EAP that further investigations into the concept of climate change are not relevant to the proposed study, hence no recommendation to this effect has been made under section 10.3 (specialist studies) of the report.</p> <p>7. As stated above, due to the fact that wind energy is considered a positive alternative to coal power energy (and therefore a positive contributor to climate change mitigation), a Climate Change Impact Assessment has not been included as a recommended study in the proposed specialist studies listed in section 10.3 of this report.</p> <p>8. It must be noted, that this statement is in contradiction to point 5 of Mr van der Spuy’s letter which references a statement by Dr Ledger saying that <i>“Whatever we do in this country to reduce our emissions will have a miniscule, unnoticeable impact on the temperature of the planet, even if you believe the ridiculous notion that a gas that constitutes 0.04% of the atmosphere could be a magical knob that can turn global temperatures up or down”</i>. Investigating the carbon sequestration on Mr van der Spuy’s clients’ properties would then essentially be of limited value as per the conclusion referenced in</p>

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		<p>another of Dr Ledger’s statements (point 5 of Mr van der Spuy’s letter): <i>“At the heart of the problem is the wishful notion that renewable energy can somehow save the planet from ‘catastrophic anthropogenic global warming’. At a local level, the notion that South Africa should involve itself in this futile gesture is laughable, given that our industries contribute around 1% of global CO₂ emissions. The very notion of CAGW is itself a farce, a man-made pseudo-religious fabrication easily discredited by rational analysis.”</i></p>
<p>9. The DSR is required to be an objective and rational document – however the proposed AWEF DSR is not. In fact the EAP is required to take an oath or affirmation in regard to the <i>“correctness of the information provided in the report”</i> (EIA Regulations; Appendix 2(1)(i)(i)). Tellingly, the affirmation under Chapter 12 of the DSR is vague and unspecific in this regard and none of the sworn items address the <i>“correctness of the information”</i>. The EAP has capitalized on this <i>“oversight”</i>.</p>		<p>9. Please note that the EAP has signed an EAP affirmation (as per the DEA application template). This was submitted with the application form for the proposed Albany WEF (a copy of the fully scanned application form is available on the CES website). This additional affirmation has been included so that each contributor of the report can undertake this affirmation too. Each final report (Scoping, EIR and Specialist Reports) will include the official departmental EAP declaration form and Specialist declaration forms as per the legislated requirements.</p> <p>As previously mentioned, the EAP, Dr Alan Carter, is a member of Environmental Assessment Practitioners Association of South Africa (EAPASA); South African Council for Natural Scientific Professions (SACNASP); and International Association for Impact Assessment (IAIA) all of which impose of conduct and ethical behaviour.</p>
<p>10. Under Appendix 2 of the EIA Regulations, which deals with the required purpose and contents of a scoping report, several requirements stipulate the need for the (D)SR to address the <i>“level of risk”</i> associated with all alternatives and also <i>“residual risk”</i> (EIA Regulations, Appendix 2, (1)(g)(viii) and (1)(h)(ix)). Yet nowhere in the DSR is the significant <i>“level of risk”</i> that will be levied against our clients interests and operations even mentioned, despite their obvious location and the very well known local and regional concerns around impacts of wind farms on game reserves and game farm operations. It is likely that the failure of the EAP to identify this obvious risk is intentional given its high significance, and consequences, and the observed propensity of the EAP to favour the Applicant’s interests. In this regard it is quite clear that the (poor) choice of preferred site for</p>		<p>10. The purpose of the Draft Scoping Report public review period is to give all Stakeholders and I&APs the opportunity to review the proposed approach and to raise any concerns which they may have from a personal (visual, financial, etc.) perspective. These issues are then incorporated into the proposed scope of work for the Environmental (and Social) Impact Assessment Phase.</p> <p>Annexure A of Mr van der Spuy’s letter includes a list of clients who have been added to the I&AP database. The clients’ properties will be assessed by both the Socio-Economic and Visual specialists (as per the updated ToR of specialist studies in section 10.3 of this report).</p>

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<p>the proposed AWEF has not considered at all such risk, or perhaps it has but has then proceeded anyway upon the basis of overriding support that will be forthcoming from the Competent Authority whose political motives have been proven to supersede its legal obligation to protect the national heritage in matters of other wind farm applications. Whatever the case, the DSR has not even identified this large risk (to our clients). In this regard the EAP will be well advised to provide the Competent Authority with a map of our clients' properties and operations (and those of others such as the Great Fish River Reserve) in order to provide the DEA with a proper understanding of the high level of risk of damage given the close proximity of our clients.</p> <p>11. All impact assessments for this application are advised to assess the specific impacts upon each of our individual client operations. This is very important. Sufficient provision will have to be made by the Applicant, participating landowners, funding institutions and other beneficiaries for compensation of residual impacts and damages that may be suffered by each of the clients. It is pointed out that compensation is an accepted and necessary form of "off-setting" which is a low order mitigation measure within the mitigation hierarchy. The EAP and the Competent Authority must apply the mitigation hierarchy to its full extent which includes off-setting/ compensation.</p>		<p>At the time of submission, Mr van der Spuy had not provided a complete list of contact details for the clients listed in Annexure A. CES requested this information on Monday, 22nd July. In order to determine the property location, industry, etc. of each client a table of questions will be distributed. A map detailing where the various properties are will be included in the EIR phase (on condition that all client contact details are provided in a timeous manner; and assuming all clients are willing to provide the requested details). The location and assessment of all affected clients, listed in Annexure A, will form part of the EIA Phase of this process.</p> <p>11. As stated above. A questionnaire will be distributed to all clients listed in Annexure A of Mr van der Spuy's letter. This will be the first step in the assessment of these properties and the associated businesses. The conditions which apply to point 11 are detailed in point 10 above (all client contact details must be provided in a timeous manner, and assuming all clients are willing to respond to the questions posed to them by the relevant specialists).</p>
<p>12. The DSR under Section 6 proclaims hugely exaggerated employment benefits associated with WEFs but these are all general and not based on any real case examples. Another unreferenced and false general statement of the DSR is that, "(i)n general the local employment component of the renewable energy projects fares much better than originally anticipated." Clearly the EAP is not concerned about the implications of breaching his oath. Some true facts regarding real employment by South African wind farms are as follows:</p> <ul style="list-style-type: none"> - Van Stadens WEF, Eastern Cape : 1 permanent employee - Hopefield WEF, Western Cape : 3 permanent employees <p>(Source: personal investigation by the author)</p>		<p>12. The data presented under Section 6 of the DSR is based on <i>Liziwe McDaid (2016) Renewable Energy Independent Power Producer Procurement Programme Review 2016: a critique of process of implementation of socio-economic benefits including job creation.</i> The socio-economic data presented in the DSR has been extracted from numerous studies, as referenced. Mr van der Spuy's alternative data is a self-referenced observation. The Socio-economic Impact Assessment will include an assessment of the jobs associated with the proposed WEF as well as a comparative assessment of data gathered for operational WEFs. This will take place during the EIA phase.</p>

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<p>These abysmal employment figures are sufficient justification alone to shelve the proposed AWEF which will be no different.</p> <p>13. The term “job years”, one recently adopted by proponents of wind farms in an effort to boost and misrepresent the poor real employment characteristics of wind farms, is used by the EAP in the DSR (and simply confirms the EAP’s bias). The EAP has neglected to explain or qualify the term since it is certainly not the equivalent of real “jobs”. In fact, it is an exponentially poorer denotation which is of almost no real value. Its use is a mere matter of (convenient) interpretation by the user of the term (in this instance, the EAP). The EAP will need to explain and quantify this term in the next version of the DSR.</p>		<p>13. The term “job years” is not a new term, and has been in use in the construction and engineering industry for decades. For Mr van der Spuy to attribute its use as “confirmation of EAP bias” is completely unsubstantiated, please see numerous energy related references to “job years” below. The Socio-economic Impact Assessment will include an assessment of the jobs associated with the proposed WEF as well as a comparative assessment of data gathered for operational WEFs. This will take place during the EIA phase.</p> <p>THE TERM JOB YEARS IS REFERRED TO IN NUMEROUS ENERGY-RELATED MATERIAL</p> <p>SA wind industry: standardised metric to assess energy sector employment (ESI Africa: Africa’s Power Journal, July 2018): “...In keeping with this trend, the Minister of Energy applies the contemporary metrics ‘job-years’ and ‘full-time equivalent’, rather than the old-fashioned and vague metric ‘jobs’, when referring to the employment opportunities being created by the Renewable Energy sector. As recently explained in Parliament by Minister Radebe, a ‘job year’ is equivalent to a full-time employment opportunity for one person for one year.”</p> <p>Renewable Energy: Where are the jobs? A critique of the government’s socio-economic programme (2016): Page 18: “In the international literature and in government job related data regarding renewable energy, job creation is beginning to be standardised in job-years. The term job-year refers to one person’s employment for one year. For example, 40 job years could mean two people employed for twenty years each, or four people employed for 10 years each.”</p> <p>SAWEA Briefing paper: An overview of the employment implications of the South African power sector transition (July 2018): Page 5:</p>

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		<p>“A job could be for a day, a month, a year or more. Internationally and increasingly in South Africa, studies are starting to be formalized around the job year. A job or employment could therefore comprise any number of, or fraction of job years. The concept of ‘Full Time Equivalent’ (FTE) is typically used to qualify absolute employment metrics.”</p> <p>Future skills and job creation through renewable energy in South Africa: Assessing the co-benefits of decarbonising the power sector (March 2019): Pages 7 and 12: “...The model was modified for the South African context. This study defines a ‘job’ or ‘employment opportunity’ in terms of full-time equivalent (FTE) units per annum. This approach accounts for part-time and full-time workers in a comparable way. One job is equivalent to one job year, with the total number of jobs indicating the total number of people employed during a specific year.” “...head count jobs (number of people employed) and job years (total number of jobs multiplied by the (maximum) number of years that those jobs are required) created according to the value chain phase for a typical 86 MW solar PV project.”</p> <p>Department of Energy (DoE): Integrated Energy Plan (Annexure B: Macroeconomic Assumptions):Pages 28 and 29: “Once both direct and supplier jobs have been calculated, it was necessary to normalise across technologies for construction build times, as the different technologies have differing lead time, the construction jobs have been represented as job years per GW of the technology installed.” “Direct jobs-: these are the direct employees responsible for building or running the power plants (or primary energy extraction). The spend in the different value pools is deemed to be direct jobs. Using a standard salary range for each of the different jobs in the different value pools the full number of job years that the total spend per plant would create is calculated.”</p> <p>REIPPPP Focus on Eastern Cape: At a glance (June 2015): Page 11 “Note 5. Employment / Job creation measured in job years (equivalent of a full time employment opportunity for one person</p>

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<p>14. The DSR also wastes no energy in lauding the proclaimed community trust benefits that have allegedly been contributed by WEFs. Contrary to this, Annexure B reveals the true experience of deceit of renewable energy companies and associated “hanger-one’s” in such “community” programmes. In the DSR the EAP has once again presented his selected and Applicant-favoured general view only. No detail specific to the proposed AWEF is provided.</p>		<p>for one year).” Contract definitions and terminology (Page A4): “Job years. Employment / Job creation is reported in job years i.e. the equivalent of a full time employment opportunity for one person for one year).”</p> <p>14. The DSR states the following regarding community trusts: “A community trust is a mechanism established for the community to hold ownership of projects, to have control of their future, to make decisions about their needs and to have some resources to implement their decisions. The aim of the Trust is to ensure that a portion of the incomes generated is directed towards local economic development of the affected communities. At this stage 2.5 to 5% equity should be held by communities, yet there are no explicit requirements on how these contributions should be spent. In round three of the bidding windows some projects have however structured 40% local ownership in their projects” (Wlokas, 2015).</p> <p>“The way in which the projects are financed is such that the financing debts must be repaid before money is available for community spend. Communities do not have the capital to invest in renewable energy projects and the community trusts are financed through loans from financial institutions. In general, for each of the community trusts, the loan must be repaid before income flows to the community, although there could be a small dividend that flows to the community earlier on already.”</p> <p>This paragraph, as referenced, is an academically referenced study. Other relevant studies include Holle L. Wlokas, Peter Westoby & Sue Soal (2017) Learning from the literature on community development for the implementation of community renewables in South Africa published in <i>Journal of Energy in Southern Africa</i>.</p> <p>The Socio-economic Impact Assessment will include an assessment of the community trust information proposed for the Albany WEF. This will take place during the EIA phase.</p>
<p>15. It is noted that a number of CES employees are involved in the “preparation” and management of this DSR yet only Dr Carter is the EAP who is bound in terms of the NEMA. Ms. R. Evans and Ms</p>		<p>15. Please note that the EAP has signed an EAP affirmation (as per the DEA application template). This was submitted with the application form for the proposed Albany WEF (a copy of the fully scanned</p>

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<p>C. Evans are thus free to act in the interests of the CES or Applicant or any other party having not been bound under oath or affirmation yet they play a significant role in the process and preparation of the DSR, including decision making on matters of fundamental importance to our clients. This situation is unacceptable and non-compliant under NEMA.</p>		<p>application form is available on the CES website). This additional affirmation has been included so that each contributor of the report can undertake this affirmation too. Each final report (Scoping, EIR and Specialist Reports) will include the official departmental EAP declaration form and Specialist declaration forms as per the legislative requirements.</p>
<p>16. Under Table 8-3 in which potential impacts associated with the proposed AWEF are listed and assigned preliminary impact ratings there is not listed any of the obvious and serious potential impacts of (i) visual impact of the huge turbines and (ii) impact of their obligatory night-lighting. These are obvious and common potential impacts associated with ALL WEFs and are invariably highly negative and beyond mitigation. Given the observed tendencies of the EAP to consistently favour the interests of the Applicant in matters of interpretation and practice the omissions are accordingly explained (but unacceptable and non-compliant with inter alia EIA regulations, Appendix 2, (1)(g)(v) and (vii)1.</p>		<p>16. Tables 8-3 (planning & design phase), 8-4 (construction phase), 8-5 (operational phase) and 8-6 (decommissioning phase) all contain proposed impacts related to the Albany WEF. Table 8-2 can be used as a guide to show Mr van der Spuy where relevant impacts have been identified. The following impacts regarding visual impact and night light have been extracted from Tables 8-3 to 8-6 <i>verbatim</i> (issue and impact extracted). These impacts, as with all impacts, are rated on a preliminary basis and require input from the specialists, as stated in the DSR.</p> <p>Table 8-3, Planning & Design impact 11 states the following: Issue: <i>Shadow Flicker</i> Impact: <i>During planning and design the failure to take shadow flicker into account may have negative health impacts on surrounding landowners. The movement of the turbine blades across the direction of sunlight causes a phenomenon called shadow flicker, which can result in health problems if people are regularly exposed to it.</i></p> <p>Table 8-3, Planning & Design impact 19 states the following: Issue: <i>Change in scenery in the WEF area</i> Impact: <i>During planning and design, incorrect placement of turbines in visually sensitive areas may negatively impact individuals' perceptions in terms of sense of place.</i></p> <p>Table 8-4, Construction impact 49 states the following Issue: <i>Visual intrusion of construction equipment</i> Impact: <i>During the construction phase the equipment needed to erect the wind turbines may affect the 'sense of place' of local residents.</i></p>

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		<p>Table 8-5, Operational impact 2 states the following: Issue: <i>Lighting</i> Impact: <i>During operations the facility may be lit at night which could have adverse impacts on the landscape character and sense of place due to long-term visibility of land.</i></p> <p>Table 8-5, Operational impact 22 states the following: Issue: <i>The effect of the WEF of the local sense of place</i> Impact: <i>During operations the visibility of the WEF from Makhanda, surrounding game farms, surrounding farms and informal settlement influencing the local people's sense of place.</i></p> <p>Table 8-6, Decommissioning impact 15 states the following: Issue: <i>Visual intrusion of construction equipment</i> Impact: <i>During decommissioning the visual intrusion of the equipment needed to dismantle the turbines may affect the local residents.</i></p> <p>Again, CES will not entertain Mr van der Spuy's unsubstantiated and defamatory remarks implying that an oversight on his part is somehow proof of his emotive and personalised remarks that "the EAP constantly favours the interests of the Applicant".</p>
<p>17. Another crucial and unacceptable failing of the impact assessment methodology (and interpretation) presented in the DSR is the failure to define, quantitatively and objectively, what level of impact (singularly and cumulatively) will be considered unacceptable. In other words what does the EAP consider to be a so-called "fatal flaw"? The EAP should define this in the next DSR version on an objective basis and according to a clear set of criteria that can be applied and reviewed by all.</p>		<p>17. The impact rating methodology, which will be used by all specialists and the EAP, as per section 10.2 "Impacts Assessment Methodology" of this report. This impacts rating methodology is consistent with industry standards.</p>
<p>18. It is noted with that CES intends to deploy various of its employees as specialists for the:</p> <ul style="list-style-type: none"> - Agricultural and soils impact assessment - The ecological impact assessment - The visual impact assessment <p>This author has had extensive experience in review of CES "specialist" impact assessments and is yet to review a single one</p>		<p>18. CES will not be drawn into Mr van der Spuy's personal defamatory statements of its employees and their qualifications. Each specialist report will include the full list of team members, CV's and specialist declarations, as per the regulations. The suitability of the specialists will be determined by the DEA. It is evident from the tone of Mr van der Spuy's remarks that he is using this platform to try to discredit the work that CES has undertaken in this country (and specifically</p>

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<p>which has any real credibility (despite the unwarranted approval of same by the DEA). All of them have shown an overt propensity to make findings in favour of the Applicant irrespective of the true facts and the consequences for the environment and affected local communities.</p> <p>Section 1 of the EIA Regulations defines a “specialist” as follows: “means a person that is <u>generally recognised within the scientific community</u> as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socioeconomic studies”. (Underlining supplied)</p> <p>In this author’s almost 30 years of environmental consulting I have never heard of Dr. A. Carter or Mr. M. Johnson as VIA specialists who are “generally recognized within the scientific community”. They may well be recognized, and indeed favored, within the wind energy development industry for obvious reasons. Likewise Ms. R. Evans and others of CES in their purported roles as specialist impact assessors.</p> <p>19. In terms of the intended ecological impact assessment it is clear that a gross underestimation is being accorded to the ecology and biodiversity of the receiving environment by expecting to cover these diverse fields within a single broad ecological impact assessment. This is inappropriate. It will be necessary to rather appoint proper specialists to each of the different faunal groups (for instance, at least an invertebrate specialist and a vertebrate specialist). Separate bird and bat specialists are already accounted for.</p>		<p>this province). There are regulatory bodies which can be approached to have consultants held to task which are more suitable avenues for Mr van der Spuy’s claims of evidence of CES’s “overt propensity to make findings in favour of the Applicant irrespective of the true facts and the consequences for the environment and affected local communities”. These unsubstantiated remarks do not relate to the content of the DSR. Mr van der Spuy’s affirmation or recognition of specialists does not qualify or disqualify them from their respective fields.</p> <p>19. The Ecological Impact Assessment field work has been ongoing since 2017. From a faunal perspective site visits have been conducted by Mr Craig Sholto-Douglas (terrestrial faunal specialist) and Mr Luke Kemp (reptilian and amphibian specialist). As per the Ecological Specialist Study scope of work, in section 10.3, it is clear that the Ecological Study has and will continue to include assessments of both the faunal and floral components of the receiving environment.</p>
<p>20. From the available information it is obvious that the chosen location for the proposed AWEF is unsuitable given the high biodiversity value attributed to most of the site, having Terrestrial and Aquatic CBA 1 and 2 statuses. Such habitats are designated as having high biodiversity value and the associated land use recommendations are that they should respectively (CBA1 and CBA 2) be left over for land uses that promote preserve (and restore if necessary) their “natural” and “near-</p>		<p>20. The Eastern Cape Biodiversity Conservation Plan (ECBCP) has not been formally amended since 2007. All properties which form part of the proposed Albany WEF have been, and are continuing to be assessed by various specialists. The specialists will inform the site sensitivity based on a combination of spatial, literature and site investigation data. Based on initial site visits much of the area listed as CBA1 has been transformed. The various specialist studies will</p>

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<p>natural” ecological characters. Large scale industrial development such as the proposed AWEF is as far removed a land use as can be from those contemplated in the relevant biodiversity plans. The CBA status of the site is a clear warning that is intended to direct just the sort of development as the proposed AWEF away from such sensitive sites. The Applicant and EAP have failed to heed this warning and the EAP shows every intent on manufacturing convenient arguments designed to justify violation of the sensitive environment. It is beyond dispute that the proposed AWEF will constitute unsustainable development on this preferred location.</p>		<p>inform the land use changes which have occurred on the proposed site.</p>
<p>21. A fundamental failure of the DRS and the Plan of Study of Scoping is its failing to intend to consider all of the impacts of the proposed AWEF. Give the legal requirement of the proposed AWEF to have to consider all of the potential impacts associated with its development it will be necessary for the proposed AWEF EIA to include all of the potential impacts of its dependant components and auxiliary functions, such as the powerline and the back-up (probably fossil fuel) power facilities. The DSR advises that the powerline component will be the subject of a separate environmental application. If this is so, then the current application will still need to consider the findings of the powerline EIA process as well, even if this requires that its decision-making process is placed on hold until such time as the powerline EIA findings are known and can be considered. Likewise the impacts of the proposed AWEF on existing power supply facilities, Eskom and the distribution network must be assessed and included in the overall decision-making process. Failure to do so will amount to incremental development which is illegal.</p>		<p>21. The specialist reports for the proposed Albany WEF and Albany Grid Connection (powerline) will be contained in one shared document. This means that each specialist (where relevant) will be assessing both the WEF and the Grid Connection (powerline) in their reports. While the WEF and the Powerline will be submitted in separate applications, the impacts associated with each will be outlined by both the specialists and the EAP. This means that the WEF EIR will include the specialist and EAP findings of the WEF and Grid Connection (powerline) and the Grid Connection BA will including the specialist and EAP findings of the Grid Connection (powerline) and WEF. The Albany WEF and Albany Grid Connection are being undertaken by separate applicants and cannot be contained within the same application / documentation.</p>
<p>22. The plan of study of impact assessment fails to include a crucial traffic impact assessment. The next version of the DSR needs to be amended to include provision for such fundamentally important study. The impacts on roads and traffic are significant and well known (and observed daily in the receiving environment). Issues of public road safety and inconvenience are but some of them.</p>		<p>22. A Traffic Impact Assessment has been added to the Final Scoping Report list of Specialist Assessments (10.3). Please see 10.3.11 for the ToR for this specialist study. The main aim of this specialist study is to inform the “Transport Management Plan” which is one of the many management plans which will be included in the EMPr.</p>

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<p>23. A proper professional property and operations value impact assessment will need to be conducted for all of our clients operations and assets in order to quantify the potential damages that may result from the proposed AWEF.</p>		<p>23. The potential socio-economic and property impacts of the proposed Albany WEF will be assessed by the Socio-Economic Specialist as per section 10.3 of this report).</p> <p>At the time of submission Mr van der Spuy had not provided a complete list of contact details for the clients listed in Annexure A. CES requested this information on Monday, 22nd July. In order to determine the property location, industry, etc. of each client a table of questions will be distributed. A map detailing where the various properties are will be included in the EIR phase (on condition that all client contact details are provided in a timely manner; and assuming all clients are willing to provide the requested details). The location and assessment of all clients in Annexure A will form part of the EIA Phase of this process.</p>
<p>24. The VIA must establish the potential visual impact on each of our clients operations. Their entire properties and surrounds must be regarded as visually sensitive environments. There are no limited, individual sensitive locations.</p>		<p>24. Annexure A of Mr van der Spuy's letter includes a list of clients who have been added to the I&AP database. The clients' properties will be assessed by both the Socio-Economic and Visual specialists (as per the updated ToR of specialist studies in section 10.3 of this report).</p> <p>At the time of submission Mr van der Spuy had not provided a complete list of contact details for the clients listed in Annexure A. CES requested this information on Monday, 22nd July. In order to determine the property location, industry, etc. of each client a table of questions will be distributed. A map detailing where the various properties are will be included in the EIR phase (on condition that all client contact details are provided in a timely manner; and assuming all clients are willing to provide the requested details). The location and assessment of all clients in Annexure A will form part of the EIA Phase of this process.</p>
<p>25. Likewise the noise impact assessment must consider the entire properties of our clients as being uniformly very sensitive. The study must assess also the impacts and levels of low frequency sound on humans and fauna. Infrasound is known to travel up to 20km and many species of fauna rely on infrasound to live out their life-cycles.</p>		<p>25. The Noise Specialist will assess the site (and the areas surrounding the site) as per SANS 101 SANS 10103 for "The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication." The Noise Specialist will inform the required buffers for the site and its surroundings based on their experiences as well as a site assessment and modelling.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>26. EIA Regulations, Appendix 2 states that;</p> <p>1. (f) <i><u>“The objective of the scoping process is to, through a consultative process... agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; ...”</u></i>, and</p> <p>2(1) <i>“A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include—</i> <i>“(j) an undertaking under oath or affirmation by the EAP in relation to the <u>level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;</u>”</i>. <i>(Underlining supplied)</i></p> <p>From the above requirements it is clear that the EAP needs to consult with I&APs and reach a “level of agreement” with them and that this must be reflected in the DSR, and indeed sworn to by the EAP. At this juncture our clients have had no interaction with the EAP and have not reached any level of agreement with the EAP. The items which need to be agreed upon are listed under Appendix 2(1)(f) and are underlined above. This comment makes it clear that none of these items are addressed in the DSR to our clients satisfaction and this comment further provides advice as to what level provision the EAP needs to proceed in order for our clients to be in a position to consider a level of agreement with the EAP. It is certainly not the right of the EAP to assume any level of agreement with our clients in their capacity as I&APs. We await further consultation with the EAP in order to</p>		<p>26. The consultation process (PPP review of Draft Scoping Report) is there to avail the content of the Scoping Report and EIR plan of study to I&APs in order for them to comment on the proposed scope and to raise issues which they may consider impacts. This is then incorporated into the Final Scoping Report, either in the form of additional scope in specialist studies or in the form of new specialist studies. All comments are documented in the Issues & Response Trail in as per the PPP regulations. This process is what acts as the process in which to include additional information from I&APs.</p> <p>With regards to 1(j), the I&APs have the opportunity to review and comment on the plan of study for the EIR. If I&APs do not comment on the plan of study, it is assumed that they are in agreement or approve the study. I&APs cannot be forced to comment and it does not mean that I&APs were not consulted. The PPP Documentation (Appendix A of this document) contains all correspondence between CES and stakeholders/I&APs. Comments received have been responded to within this IRT and clarifications have been made (as referenced in this table) within the Final Scoping Report.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>establish a level of agreement and we confirm that at this point their exists absolutely nil level of agreement between our clients and the EAP.</p> <p>Points 27-28 present the conclusion of the points raised in the Comment and Objection letter, as per Appendix A (13.5)</p>		
<p>As per Appendix A (13.5), a Position Statement was received from Indalo. The concluding statement reads as follows:</p> <p>“The Indalo Protected Area Management Authority opposes the proposed location of any wind energy facility that may jeopardize in any way the core eco-tourism business model of any of the game reserves within the Indalo Protected Environment and thereby threaten the substantial conservation and socio-economic benefits that these protected areas provide.”</p>	<p>Mr Mark Palmer</p> <p>Indalo</p> <p>19/07/2019</p>	<p>As per section 10.3 of the Final Scoping Report the Visual and Socio-Economic Specialist Studies will include an assessment of each of the consumptive / non-consumptive game industry entities which have identified themselves as having the potential of being visually affected by the proposed development. Each landowner, within 20km of the site and those who have raised individual concerns will be contacted to obtain more information regarding the location of their properties and the activities undertaken on these properties. The various specialists will use this data to inform the overall impact on each landowner.</p>
<p>As per Appendix A (13.5), an email was received from Ms Shane Gertze with comments on behalf of ECPTA. The following issues have been raised by ECPTA:</p> <p>ECPTA Protected Areas</p> <p>The ECPTA is the management authority of Beggar’s Bush and Kap River Nature Reserves. For Beggar’s Bush Nature Reserve we note that the Nature Reserve is in the middle of the project area for the proposed WEF. As such, we are concerned about the impact this development would have on the ecological functioning of the Nature Reserve. The project area south of the N2 appears to fall within the catchment area of Kap River, which flows through the Kap River Nature Reserve. A physical change in the landscape of the Kap River’s catchment could potentially have a negative impact on the Kap River Nature Reserve downstream. During the scoping period, there needs be an assessment on the hydrological impact of this development on the Kap River catchment.</p>	<p>Ms Shanè Gertze</p> <p>EASTERN CAPE PARKS AND TOURISM AGENCY [ECPTA]</p> <p>19/07/2019</p>	<p>All specialist studies and reports are undertaken during the EIR phase, and not during the scoping phase. This is to ensure that DEA, DEDEAT, ECPTA and other stakeholders have the opportunity to recommend additional specialist studies. Based on this comment, section 10.3 of the Scoping Report has been updated to include a hydrological study of the Kap River catchment. This additional specialist study will be used to inform the potential impact of the proposed development on this catchment.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>Page 22: Section 3.1 What would the percentage contribution of the development be in achieving the targets for renewable energy in South Africa.</p>		<p>The proposed development would contribute a maximum total of 297MW of energy. In term of the Eastern Cape Renewable Energy target of 1700MW (please see Chapter 3), the proposed Albany WEF would contribute 17% upon completion (provided that the proposed WEF be built as proposed in the initial documentation).</p>
<p>Page 23: Section 3.2 The relevant types of socio-economics impacts (e.g. short vs permanent jobs) and benefits (e.g. employment) needs to be noted and based on research and evidence from similar projects.</p>		<p>The Socio-Economic Specialist Report will include sections outlining the various jobs associated with the phases of the proposed development.</p>
<p>Pages 29, 43 and 97: Respectively Sections 3.5.2., 5.4 and 8.3 The specialists need to inform us if the project will not compromise the localised Climate Change Adaptation process for the area. It should be noted that area is within one of the areas identified as a climate change corridor as well as an ecological corridor linking existing protected areas within the Province.</p>		<p>The Ecological Specialist Report will assess the impacts of the proposed development on the climate change corridor (and the ecological corridor linking protected areas).</p>
<p>Page 33: Section 4.3 A map depicting the proximity of the protected areas managed by the ECPTA (especially, Beggar’s Bush, Great Fish River and Kap River Nature Reserves) and other entities (for example Private Game Reserves) need to be included. Also, the proposed visual impact analysis would need to assess the visual impact on these protected areas.</p>		<p>As per Section 10.3 of this report, the specialist studies listed include a Visual, Ecological and Socio-Economic Impact Assessment. These reports will assess the impact on the surrounding public and private nature reserves as well as various consumptive-based game farms in the area.</p>
<p>Page 34: Section 4.4 It should be noted that the project area is within the Albany Centre of endemism as such there are numerous rare and endangered species that need to be thoroughly investigated by a botanist. Areas surrounding the project area has vulnerable species such <i>Eriospermum bracteatum</i>, <i>Faucaria tigrina</i> and a number of Endangered species that only have few living such as <i>Agathos bicornuta</i>. Hence, during the scoping period there also needs be a very extensive search for these threatened species to determine the extent of the impact or the possibility of driving this species to extinction.</p>		<p>The Ecological Specialist Study includes both site visits and desktop assessment of the present ecological state of the receiving environment. This is done as part of the EIR phase. The Ecologists will detail the impacts on the receiving environment, both within the report and spatially (in the form of no-go, high sensitivity, moderate sensitivity and low sensitivity areas) to be able to inform suitable mitigation methods.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>Pages 44 -49: Section 5.6 The information in this Section should be based on the 2018 vegetation map produced by the South African National Biodiversity Institute.</p>		<p>The information in Section 5.6.1 was (Draft SR) and still is (Final SR) based on the written and spatial data of the 2018 SANBI National Vegetation Map (Mucina and Rutherford, 2018).</p>
<p>Page 70: Section 6.5.4. B The respective specialist would have to conduct a comparison of the positive economic benefits and sustainability between this development and the tourism industry of the Region where the project is proposed.</p>		<p>As per Section 10.3 of this report, the specialist studies listed include a Socio-Economic study. This study will include an assessment of the positive and negative socio-economic impacts on both the receiving environment and the surrounding communities.</p>
<p>Page 93: Section 7.5 Motivation is required regarding why the development is being proposed outside the Renewable Energy Development Zones.</p>		<p>A section of the proposed site occurs within REDZ 3 (Cookhouse). The remaining site was selected based on both wind potential and the landuse of the properties. Other factors will be detailed in the EIR and various specialist studies, including Avifaunal, Socio-Economic and Visual impacts of developments which have been proposed within the area, some of which occur within the Cookhouse (3) REDZ.</p>
<p>OTHER COMMENTS Lastly, based on the historical events which occurred within the Region, the specialists needs to investigate the potential impacts of this development on heritage.</p>		<p>As per Section 10.3 of this report, the specialist studies listed includes both Archaeological and Paleontological Impact Assessment studies. These studies will assess the impacts on the receiving environment in terms of heritage. All specialist impacts will be incorporated into the overall site sensitivity and will be included in the EIR in order to determine the overall impact of the proposed WEF.</p>
<p>As per Appendix A (13.5), an email was received from Mr Colin Coetzee. The following issues were raised:</p> <ol style="list-style-type: none"> 1. Our main source of income in international hunting, our clients come to us mainly to experience the open spaces and vast spaces without fences and other developments. Having this wind farm in the area will put an end to all of our income. This will leave our 12 staff unemployed. 2. We are concerned that said development will devalue properties in the area. We are substantially dependent on international investors. 	<p>Mr Colin Coetzee GAME 4 AFRICA 18/07/2019 [SUPPORTED BY: Mr Sandile Xakuma; Mr Elliot Embilini; Mr Mfundo Mike Mzizi; Mr Lubabalo Mohzi; Mr Norman Mandaza;</p>	<p>1, 2, 3. As per section 10.3 of the Final Scoping Report the Visual and Socio-Economic Specialist Studies will include an assessment of each of the consumptive / non-consumptive game industry entities which has commented on the Scoping Report as part of their assessments. Each landowner, including Mr Colin Coetzee, will be contacted to obtain more information regarding the location of their properties and the activities undertaken on these properties. The various specialists will use this data to inform the overall impact on each landowner.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>3. The turbines will impact the scenic views that the Eastern Cape is well-known for. This will have an adverse effect on tourism in the area, and subsequently mean the loss of revenue and employment opportunities.</p> <p>4. The Great Fish River Valley and surrounding hills is the confluence of the two Global biodiversity hotspots of Fynbos and Sub-tropical Thicket. The landscapes and scenic splendour of this area are now limited and threatened with a number of proposed and existing wind farm developments around the Eastern Cape. Various forms of wildlife-based tourism initiatives take place in this area of the Eastern Cape, and they will be greatly threatened by this development.</p> <p>5. The construction of said wind farm will have its own challenges, such as:</p> <ul style="list-style-type: none"> e) Increased risk for poaching and theft. f) Unavoidable impact on habitat caused by increased traffic and new roads made to turbines; the destruction of vegetation where the turbines will be erected. g) Erosion at the base of the turbine which can spread. h) Littering by contractors in the area. <p>6. The flickering and sound of wind farms will affect the animals of the area. There are multiple endangered species, such as the black rhino, which relies heavily on communication. The effect of wind farms has not been properly established on these animals, and we would like to see an independent study be completed.</p> <p>7. The impact on birds and bats, as stated in various studies.</p>	<p>Mr Frazer; Mr Bongwiwe Nanto; Ms Clare Rieger; and Ms Ntombekhaya Krolo]</p>	<p>4. The Ecological Specialist Study will include an assessment (including of the cumulative impacts of similar developments) of the impact on the various affected biomes to ensure that a tangible figure can be placed on the impact on vegetation.</p> <p>5. All impacts listed will be assessed in the EIR documentation based on information obtained from both specialists and existing wind energy developments.</p> <p>6. Various studies have been undertaken on the effect of terrestrial fauna within the vicinity of wind energy facilities. An independent study will not be conducted as part of the proposed Albany WEF due to the fact that site is not situated on game farms that includes species such as Black Rhinoceros (<i>Diceros bicornis</i>).</p> <p>7. The proposed Albany WEF site has undergone 12-month pre-construction Avifaunal and Bat monitoring assessments. The EIR phase will include the results of these studies in the form of an Avifaunal Impact Assessment Report and a Bat Impact Assessment Report.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>8. The noise generated by the wind farms poses a health risk – there are multiple reports of migraines, tinnitus, dizziness, and so forth.</p> <p>9. We are concerned about the effect of the inequitable spread of financial benefit. As we understand only the farms where wind farms will be erected will gain financially. Neighbouring farms, which will be directly affected, will not benefit financially and this may cause discord in the community.</p> <p>10. The environmental impact of the turbines after their lifespan is also concerning. We want to be informed as to what will be happening with the constructions when it reaches the end of its useful life. What will be done to restore the area to its former habitat?</p> <p>We support the idea of alternative energy sources and renewable energy, but it could be done in areas where it will have a smaller impact on nature and the local community.</p>		<p>8. The Scoping Report (section 10.3) includes a list of specialists who will be undertaking studies during the EIR phase. The Noise Impact Assessment will include the placement of buffers around any current and potential dwellings.</p> <p>9. The Socio-Economic Specialist Study will include an assessment of the financial risks and benefits of the proposed wind energy facility, which will include the associated impacts. These will be rated according to the impacts rating methodology as per section 10.2 “Impacts Assessment Methodology” of this report.</p> <p>10. The EIR includes the assessment of four phases, namely: planning and design phase, construction phase, operation phase and decommissioning phase. The decommissioning phase (which includes the removal of the structures and the associated rehabilitation of the site) will include the impacts and proposed mitigation methods associated with the removal of the structures.</p> <p>The EIR phase (and its associated specialist impacts) aims to determine the impact on the proposed site from an environmental and socio-economic perspective. Only once the impact on the receiving environment has been assessed will the EAP be in a position to comment on the scale of the impact of the proposed development.</p>
<p>As per Appendix A (13.5), a letter was received from Mr Gerry Pienaar on behalf of DEDEAT. The following issues were raised:</p> <p>The Eastern Cape Department of Economic Development and Tourism [DEDEAT] has perused the Draft Scoping Report and is generally satisfied that it provides an adequate basis for the further phases of the EIA process. The Department would however like to request as follows:</p> <p>1. The visual impact assessment must include all protected areas within a 20km radius of the proposed development as potential visual receptors. This should include Kwandwe Private Game Reserve and the newly established Buffelskloof Protected Environment. The visual impact assessment should pay particular attention to the impact that the proposed WEF could potentially</p>	<p>Mr Gerry Pienaar</p> <p>THE EASTERN CAPE DEPARTMENT OF ECONOMIC DEVELOPMENT AND TOURISM [DEDEAT]</p> <p>17/07/2019</p>	<p>1. Both the Visual and Socio-Economic Specialist Studies will include assessments of the protected areas within a 20km radius of the site. Please see section 10.3 of this report for updated ToRs of the relevant specialist studies. These assessments will include both Kwandwe Private Game Reserve and Buffalo Kloof Protected Environment.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>have at night, and if significant impacts are envisaged, what possible mitigation measures could be applied.</p> <p>2. Similarly the socio-economic assessment should pay particular attention to any adverse impacts that the proposed WEF might have on the business operations of major private game reserves, such as Kwandwe. The socio-economic assessment should not only reflect the undoubted benefits of a WEF, but should also consider the economic contribution that private conservation areas already make.</p> <p>3. DEDEAT regards the cluster of major private game reserves in the Albany area as of very significant economic and conservation value to the province and believes that everything possible should be done prevent adverse impacts on these assets.</p>		<p>2. Both the Visual and Socio-Economic Specialist Studies will include assessments of the protected areas within a 20km radius of the site. Please see section 10.3 of this report for updated ToRs of the relevant specialist studies. These assessments will include both Kwandwe Private Game Reserve and Buffalo Kloof Protected Environment.</p> <p>3. Relevant specialists will ensure that all impacts are identified, assessed and incorporated into their Reports. The EAP will use these reports to inform the overall impact of the proposed WEF in the EIR documentation.</p>
<p>As per Appendix A (13.5), a letter was received from Ms Zamalanga Langa on behalf of DEA. The following comments were submitted:</p> <p>a. It is noted that the listed activities that are applied for in the application form differ from those mentioned in the draft SR, an amended application form must be submitted with the final SR. Please note that the Department's application form template has been amended and can be downloaded from the following link https://www.environmental.gov.za/documents/forms</p> <p>b. The newspaper advert attached to the DSR is not clear. The final SR must include a clear copy of the advert used in terms of Regulation 41. (2)(c) of the EIA Regulations, as amended. The advert must clearly show the name of the newspaper and the date on which the advert was placed.</p> <p>c. Please ensure that all issues raised and comments received during the circulation of SR from registered I&APs and organs of state which have jurisdiction (including this Department's Biodiversity Section) in respect of the proposed activity are adequately addressed in the Final SR.</p>	<p>Ms Zamalanga Langa</p> <p>DEPARTMENT OF ENVIRONMENTAL AFFAIRS [DEA]</p> <p>09/07/2019</p>	<p>a. CES has checked and double checked the application form and the table of listed activities which appears in the application form and in the Draft Scoping Report are identical. A hard copy of the application form has been included with the submission of the Final Scoping Report for clarification purposes. As per the Departments website, the latest version of the Application Form template is dated September 2018. This is the same version which was submitted to the Department on the 14th June 2019 for the proposed Albany WEF.</p> <p>b. A higher resolution advertisement has replaced the original copy and is now clearly visible.</p> <p>c. All issues and comments received during the circulation of the SR have been detailed (verbatim) in this issues and response trail. All comments have been addressed and/or responded to.</p>

STAKEHOLDER / I&AP QUERY/COMMENT	STAKEHOLDER / I&AP	EAP RESPONSE
<p>d. Proof of correspondence with the various stakeholders must be included in the Final SR. should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments.</p> <p>e. The Public Participation Process must be conducted in terms of Regulation 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014, as amended.</p>		<p>d. Please see Appendix A of the Final Scoping Report for all PPP proofs.</p> <p>e. Please see Section 9 and Appendix A of the Final Scoping Report.</p>
<p>f. Due to the number of similar applications in the area, all the specialist assessments must include a cumulative environmental impact statement. All identified impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e. hectares of cumulatively transformed land.</p>		<p>f. Section 10.3 of the Scoping Report has been updated to specifically mention that each identified specialist report will include a cumulative impact of surrounding Wind Energy Facilities.</p>
<p>g. The identified cumulative impacts associated with the proposed development must be rated with the significance rating methodology.</p>		<p>g. All impacts identified by the specialists will be assessed using the CES Impacts Rating Methodology, this methodology can be found in section 10.2 “Impacts Assessment Methodology” of this report.</p>
<p>h. The cumulative impacts significance rating must inform the need and desirability of the proposed development</p>		<p>h. The impacts and cumulative impacts identified and assessed by all specialists will be used to inform the need and desirability chapter of the EIR.</p>
<p>i. Detailed cumulative impact assessments must be provided in the EIAR for all specialist studies conducted. The specialist studies must provide proof that other specialist reports that were conducted for renewable energy projects in the area were reviewed and indicate how the recommendations, mitigation measures and conclusions have been taken into consideration when the conclusion and mitigation measures were drafted for this project.</p>		<p>i. As per the above responses, the specialist ToRs have been updated to reflect this inclusion.</p>
<p>j. The final Scoping Report must indicated and describe the competing land uses in the area. This must further motivate the desirability of locating the Wind Energy Facility at the preferred location.</p>		<p>j. Please refer to section 6.9 of the Final Scoping Report for a section outlining competing landuses, with specific reference to how this has informed the preferred location. Competing land uses will be assessed in both the Agriculture & Soils Specialist Report and the Socio-Economic Specialist Report (during the EIR phase).</p>

14 APPENDIX B: CURRICULUM VITAE

- Dr Alan Carter
- Ms Caroline Evans
- Ms Rosalie Evans

FINAL