

Basic Assessment for the proposed construction of a 132 kV overhead transmission powerline between the proposed authorised Kwagga Wind Energy Facility 1 and the proposed authorised Beaufort West 132 kV / 400 kV Linking Station, near Beaufort West in the Western Cape Province

EXECUTIVE SUMMARY

November 2022



Prepared for:
ABO Wind Renewable
Energies (Pty) Ltd

Prepared by:
CSIR Environmental
Management Services,
PO Box 320, Stellenbosch
7599, South Africa



BASIC ASSESSMENT PROCESS

for the
Proposed Construction of a 132 kV overhead transmission powerline between
the proposed authorised Kwagga WEF 1 and the proposed authorised
Beaufort West 132 kV-400 kV Linking Station (i.e., Kwagga EGI Section 2),
near Beaufort West in the Western Cape Province

FINAL BASIC ASSESSMENT REPORT

November 2022

Prepared for:

ABO Wind renewable energies (Pty) Ltd

Prepared by:

CSIR Environmental Management Services
P. O. Box 320, Stellenbosch, 7599
Tel: 021 888 2400
Fax: 021 888 2693

Lead Authors:

Paul Lochner, Lizande Kellerman, Dhiveshni Moodley and Rohaida Abed (CSIR)

Specialists:

Johann Lanz; Menno Klapwijk; Dr Jayson Orton; Dr. John Almond; Dr Noel van Rooyen; Prof
Gretel van Rooyen; Antonia Belcher; Chris van Rooyen; Albert Froneman

Mapping:

Dhiveshni Moodley (CSIR)

Formatting and Desktop Publishing:

Magdel van der Merwe (DTP Solutions)

© CSIR 2022. All rights to the intellectual property and/or contents of this document remain vested in the CSIR. This document is issued for the sole purpose for which it is supplied. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by means electronic, mechanical, photocopying, recording or otherwise without the express written permission of the CSIR. It may also not be lent, resold, hired out or otherwise disposed of by way of trade in any form of binding or cover than that in which it is published.

REPORT DETAILS

Title:	Basic Assessment for the Proposed Construction of a 132 kV Overhead Transmission Powerline between the proposed authorised Kwagga Wind Energy Facility 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station (i.e., Kwagga EGI Section 2), near Beaufort West in the Western Cape Province: FINAL BASIC ASSESSMENT (BA) REPORT
Purpose of this report:	<p>The purpose of this Draft BA Report is to:</p> <ul style="list-style-type: none"> • Present the details of and the need for the proposed project; • Describe the affected environment at a sufficient level of detail to facilitate informed decision-making; • Provide an overview of the BA Process being followed, including public consultation; • Assess the potential positive and negative impacts of the proposed project on the environment; • Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the project; and • Provide an Environmental Management Programme (EMPr) for the proposed project. <p>The Draft BA Report was made available to all Interested and/or Affected Parties (I&APs), Organs of State and stakeholders for a 30-day review period extending from 11 July 2022 to 11 August 2022, excluding public holidays. Following receipt of comments during this review period, the Project Applicant was required to re-align the proposed Kwagga EGI Section 2 powerline route within the already assessed corridor i.e., to connect the proposed authorised Kwagga WEF 1 (DFFE Ref: 14-12-16-3-3-2-2070) project directly to the proposed authorised Beaufort West 132 kV-400 kV Linking Station (DFFE Ref: 14-12-16-3-3-2-925-1). Following from liaison with DFFE on 6 October 2022 regarding these changes, written notification was submitted in terms of Regulation 19(1)(b) of the 2014 NEMA EIA Regulations (as amended) that the revised Draft BA Report, inclusive of all relevant appendices will be subjected to another 30-day review period after which the Final BA Report will be submitted to DFFE for decision-making within 140 days of receipt of the application by the DFFE.</p> <p>The revised Draft BA Report was re-released to all I&APs, Organs of State and stakeholders for a 30-day review period extending from 24 October 2022 to 24 November 2022, excluding public holidays. All comments submitted have been incorporated and addressed, as applicable and where relevant, into the Final BA Report. The Final BA Report has been submitted to the National Department of Forestry, Fisheries and the Environment (DFFE) for decision-making.</p>
Prepared for:	ABO Wind renewable energies (Pty) Ltd
Prepared by:	Council for Scientific and Industrial Research (CSIR): P. O. Box 320, Stellenbosch, 7599 Tel: +27 21 888 2400 Fax: +27 21 888 2693
Authors:	CSIR: Paul Lochner, Lizande Kellerman, Dhiveshni Moodley and Rohaida Abed SPECIALISTS: Johann Lanz; Menno Klapwijk; Dr Jayson Orton; Dr John Almond; Dr Noel van Rooyen; Prof Gretel van Rooyen; Antonia Belcher; Chris van Rooyen; Albert Froneman
Mapping:	Dhiveshni Moodley (CSIR)
Date:	November 2022
DFFE Reference:	14/12/16/3/3/1/2579
Formatting and Desktop Publishing:	Magdel van der Merwe, DTP Solutions
To be cited as:	CSIR, 2022. Basic Assessment for the Proposed Construction of a 132 kV Overhead Transmission Powerline between the proposed authorised Kwagga Wind Energy Facility 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station (i.e., Kwagga EGI Section 2), near Beaufort West in the Western Cape Province: CSIR/SPLA/SECO/ER/2022/0021/B

CONTENTS



SECTION A: INTRODUCTION, PROJECT DESCRIPTION; ALTERNATIVES; LEGISLATION; SCREENING TOOL	34
A.1 Introduction	34
A.2 Project Developer	41
A.3 Project Applicant	41
A.4 Project Team	41
A.5 Project Motivation	43
A.6 Project Co-ordinates	45
A.7 Project Description	45
A.7.1 On-site Substations	48
A.7.2 Associated Infrastructure	48
A.7.3 External Access Roads	48
A.8 Overview of the Project Development Cycle	49
A.8.1 Construction Phase	49
A.8.2 Operational Phase	49
A.8.3 Decommissioning Phase	50
A.9 Service Provision: Water Usage, Sewage, Solid Waste and Electricity Requirements	50
A.9.1 Water Usage	50
A.9.2 Sewage or Liquid Effluent	50
A.9.3 Solid Waste Generation	51
A.9.4 Electricity Requirements	51
A.10 Applicable Legislation	51
A.10.1 National Legislation	52
A.10.1.1 <i>The Constitution of the Republic of South Africa (Act 108 of 1996)</i>	52
A.10.1.2 <i>NEMA and EIA Regulations published on 8 December 2014 (as amended on 7 April 2017 and 11 June 2021; GN R327, GN R326, GN R325 and GN R324)</i>	52
A.10.1.3 <i>Government Notice (GN) R960 (published 5 July 2019)</i>	53
A.10.1.4 <i>Government Notice (GN) R320 (20 March 2020)</i>	53
A.10.1.5 <i>Government Notice (GN) R1150 (30 October 2020)</i>	53
A.10.1.6 <i>National Environmental Management: Biodiversity Act (Act 10 of 2004)</i>	54
A.10.1.7 <i>The National Heritage Resources Act (Act 25 of 1999)</i>	54
A.10.1.8 <i>National Forests Act (Act 84 of 1998)</i>	57
A.10.1.9 <i>Conservation of Agricultural Resources Act (Act 43 of 1983)</i>	57
A.10.1.10 <i>National Water Act (Act 36 of 1998)</i>	58
A.10.1.11 <i>Water Services Act (Act 108 of 1997)</i>	59

A.10.1.12	Hazardous Substances Act (Act 15 of 1973)	59
A.10.1.13	Subdivision of Agricultural Land Act (Act 70 of 1970)	59
A.10.1.14	National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA)	60
A.10.1.15	National Environmental Management: Air Quality Act (Act 39 of 2004)	60
A.10.1.16	Development Facilitation Act (Act 67 of 1995)	60
A.10.2	Provincial Legislation	60
A.10.2.1	Western Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974) and the Western Cape Nature Conservation Laws Amendment Act (Act No. 3 of 2000)	60
A.10.2.2	Draft Western Cape Biodiversity Bill (7 May 2019)	61
A.10.2.3	Western Cape Land Use Planning Act (Act No. 3 of 2014)	61
A.10.3	Local Planning Legislation	61
A.10.3.1	Environmental Management Framework	61
A.10.3.2	Beaufort West Local Municipality Integrated Development Plan (Beaufort West Local Municipality 2017-2022)	61
A.10.3.3	Prince Albert Local Municipality Integrated Development Plan (Prince Albert Local Municipality 2017-2022)	62
A.10.4	International Finance Corporation Performance Standards	63
A.11	Listed Activities Associated with the Proposed Projects	64
A.12	National Web-Based Environmental Screening Tool	66
A.12.1	Square Kilometre Array and Radio Frequency Interference	68
A.13	Description of Alternatives	72
A.13.1	No-go Alternative	73
A.13.2	Type of Activity Alternatives	74
A.13.3	Technology Alternatives	74
A.13.4	Site Alternatives	74
A.13.5	Development Footprint Location and Layout Alternatives	76
A.13.6	Concluding Statement for Alternatives	77
A.14	Need and Desirability	79
 SECTION B: DESCRIPTION OF THE AFFECTED ENVIRONMENT		 97
B.1	Project Background	97
B.2	Biophysical Environment	98
B.2.1	Climate Conditions	98
B.2.1.1	Climate Change	101
B.2.2	Topography and Landscape	102
B.2.3	Regional Geology	103
B.2.4	Geohydrology	104
B.2.5	Land types and Soils	105
B.2.6	Land Capability and Agricultural Sensitivity	107
B.2.6.1	General Context	107
B.2.6.2	Screening Tool Descriptions and Site Verification	107
B.2.7	Strategic Water Source Areas	109
B.2.8	Aquatic Biodiversity	110
B.2.8.1	General Context	110

B.2.8.2	<i>Biodiversity Conservation Planning</i>	112
B.2.8.3	<i>Aquatic Ecosystems</i>	113
B.2.8.4	<i>Aquatic Species</i>	114
B.2.8.5	<i>Screening Tool Descriptions and Site Verifications</i>	114
B.2.9	Terrestrial Biodiversity	115
B.2.9.1	<i>General Context</i>	116
B.2.9.2	<i>Biodiversity Conservation Planning</i>	116
B.2.9.3	<i>Terrestrial Ecosystems</i>	116
B.2.9.4	<i>Terrestrial Species</i>	117
B.2.9.5	<i>Screening Tool Descriptions and Site Verification</i>	117
B.2.10	Avifauna	120
B.2.10.1	<i>Screening Tool Descriptions and Site Verification</i>	122
B.2.11	Visual Aspects and Sensitive Receptors	123
B.2.11.1	<i>Screening Tool Descriptions and Site Verification</i>	124
B.2.12	Heritage: Archaeology and Cultural Landscape	124
B.2.12.1	<i>Screening Tool Descriptions and Site Verification</i>	125
B.2.13	Palaeontology	126
B.2.14	Screening Tool Descriptions and Site Verification	127
B.3	Eco-Tourism Activities	128
B.4	Civil Aviation and Defence	129
 SECTION C: PUBLIC PARTICIPATION		 131
C.1	Introduction to the Public Participation Process	131
C.2	Public Participation Plan	133
C.3	Pre-Application Meeting and Consultation with the DFFE	134
C.4	Landowner Written Consent	135
C.5	Site Notice Boards	136
C.6	Newspaper Advertisement	137
C.7	Determination of Appropriate Measures	137
C.8	Approach to the PPP	139
C.8.1	BA Report Phase - Review of the Draft BA Report	139
C.8.2	Compilation of Final BA Reports for Submission to the DFFE	141
C.8.3	Environmental Decision-Making and Appeal Period	142
C.9	Consultation with Heritage Western Cape	143
 SECTION D: IMPACT ASSESSMENT		 145
D.1	Approach to the BA: Methodology of the Impact Assessment	145
D.2	Assessment of Environmental Risks and Impacts	155
D.2.1	Agriculture	155
D.2.1.1	<i>Approach and Methodology</i>	155

A.1.1.1	Relevant Project Aspects relating to Agricultural Impacts	155
D.2.1.2	Potential Impacts	156
D.2.1.3	Concluding Statement	157
D.2.2	Visual Impact Assessment	157
D.2.2.1	Approach and Methodology	157
D.2.2.2	Relevant Project Aspects relating to Visual Impacts	158
D.2.2.3	Potential Impacts	158
D.2.2.4	Impact Assessment	159
D.2.2.5	Concluding Statement	161
D.2.3	Heritage Impact Assessment (Archaeology and Cultural Landscape)	161
D.2.3.1	Approach and Methodology	162
D.2.3.2	Relevant Project Aspects relating to Heritage Impacts	162
D.2.3.3	Potential Impacts	162
D.2.3.4	Impact Assessment	163
D.2.3.5	Concluding Statement	164
D.2.4	Palaeontology Impact Assessment	164
D.2.4.1	Approach and Methodology	165
D.2.4.2	Relevant Project Aspects relating to Palaeontological Impacts	165
D.2.4.3	Potential Impacts	165
D.2.4.4	Impact Assessment	166
D.2.4.5	Concluding Statement	168
D.2.5	Terrestrial Biodiversity and Species	169
D.2.5.1	Approach and Methodology	169
D.2.5.2	Relevant Project Aspects relating to Terrestrial Biodiversity and Species Impacts	170
D.2.5.3	Potential Impacts	170
D.2.5.4	Impact Assessment	172
D.2.5.5	Concluding Statement	179
D.2.6	Aquatic Biodiversity	180
D.2.6.1	Approach and Methodology	180
D.2.6.2	Relevant Project Aspects relating to Aquatic Biodiversity Impacts	181
D.2.6.3	Potential Impacts	181
D.2.6.4	Impact Assessment	183
D.2.6.5	Concluding Statement	186
D.2.7	Avifauna Impact Assessment	186
D.2.7.1	Approach and Methodology	186
D.2.7.2	Relevant Project Aspects relating to Avifaunal Impacts	187
D.2.7.3	Potential Impacts	187
D.2.7.4	Impact Assessment	188
D.2.7.5	Concluding Statement	192
D.2.8	Environmental Sensitivity Mapping	192

SECTION E: RECOMMENDATION OF PRACTITIONER & ENVIRONMENTAL IMPACT STATEMENT _____ 199

SECTION F: APPENDICES

Appendix A	EAP Details, Expertise and Declaration of Interest
Appendix B	Specialist Declarations of Interest
Appendix C	Maps
Appendix D	Specialist Studies
Appendix E	Public Participation
Appendix F	Pre-Consultation with the Competent Authority
Appendix G	Environmental Management Programme (EMPr)
Appendix H	Specialist Confirmation Letters
Appendix I	Additional Information

TABLES



Table A.	Project Team for the Kwagga Powerline BA Processes.....	18
Table B.	Project Components for the proposed 132 kV Overhead Powerline.....	20
Table C.	Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative Impacts for the Kwagga EGI Projects	29
Table D.	Overall Impact Significance with the Implementation of Mitigation Measures for Cumulative Negative Impacts for the Kwagga EGI Projects	29
Table A.1.	Proposed Powerline Project Sections comprising the Kwagga EGI Corridor and the main Affected Farm Portions.....	39
Table A.2.	Details of the BA Project Team	43
Table A.3.	Co-ordinate Points along the start, middle and end points of the proposed 132 kV overhead transmission powerline route i.e. Section 2 of the Kwagga EGI Corridor	45
Table A.4.	Co-ordinate Points along the start, middle and end points of the access road for the proposed 132 kV overhead transmission powerline route i.e., Section 2 of the Kwagga EGI Corridor	45
Table A.5.	Description of the Project Components for the proposed 132 kV Overhead powerline (i.e. Section 2 of the Kwagga EGI Corridor).....	46
Table A.6.	Applicable Listed Activities for the Proposed Powerline Projects.....	64
Table A.7.	List of Specialist Assessments identified by the Screening Tool	68
Table A.8.	SKA sensitivity distance guidelines (Source: DFFE, 2019: Part 3, Page 2)	71
Table A.8.	The Guideline on the Need and Desirability’s list of questions to determine the “Need and Desirability” of a proposed project	79
Table B.1:	Powerline sensitive species recoded during field surveys that could occur on the PAOI, with regional status (Source: Van Rooyen, 2021) NT = Near threatened VU = Vulnerable EN = Endangered H = High M = Medium L = Low	121
Table C.1.	Extent of withdrawal of various directions regarding measures to address, prevent and combat the spread of COVID-19 (Source: Extracted from Government Gazette 46075, 2022)	134
Table C.2.	Site Notice Board Placement for the Proposed Projects	136
Table D.1.	Proposed renewable energy and EGI projects that have received EA within 50 km of the proposed projects (Source: DFFE REEA, 2022).....	148
Table D.2.	Proposed and existing EGI projects within 50 km of the proposed projects (Source: Eskom GCCA 2022)	149
Table D.3.	Proposed Kwagga EGI Projects.....	149
Table E.1.	Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative Impacts for the Kwagga EGI Projects	201

Table E.2.	Overall Impact Significance with the Implementation of Mitigation Measures for Cumulative Negative for the Kwagga EGI Projects.....	201
------------	---	-----

Figure A.	Locality of the Kwagga EGI Corridor comprising the seven proposed 132 kV overhead transmission powerline projects (i.e., Kwagga EGI Section 1 – 7).....	18
Figure B.	Locality map showing the proposed 132 kV overhead powerline in relation to the Kwagga EGI Corridor (i.e., Kwagga EGI Section 2 that is the subject of this BA Report), which extends between the proposed authorised Kwagga WEF 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station.....	20
Figure A.1.	Locality of the Kwagga EGI Corridor comprising the seven proposed 132 kV overhead transmission powerline projects (i.e., Kwagga EGI Section 1 – 7).....	37
Figure A.2.	Locality map showing the proposed 132 kV overhead powerline in relation to the Kwagga EGI Corridor (i.e., Kwagga EGI Section 2 that is the subject of this BA Report), which extends between the proposed authorised Kwagga WEF 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station.....	46
Figure A.3.	Location of the proposed projects in relation to the SKA and KCAA.....	72
Figure B.1:	Köppen-Geiger Climate Classification of the Central Karoo District Municipality, including the proposed Kwagga EGI Corridor (indicated in red circle) (Source: Western Cape Department of Environmental Affairs, and Development Planning (DEA&DP), 2019).....	99
Figure B.2:	The average monthly distribution of rainfall within the Beaufort West area, including the proposed powerline corridor for the period 2010 – 2020 (Source: https://www.worldweatheronline.com/beaufort-west-weather-averages/western-cape/za, 2022).....	99
Figure B.3.	The average annual rainfall within the Beaufort West area, including the proposed powerline corridor for the drought-stricken period 2016 – 2021 (Source: https://www.worldweatheronline.com/beaufort-west-weather-averages/western-cape/za, 2022).....	100
Figure B.4.	The average monthly maximum and minimum temperature for the Beaufort West area, including the proposed powerline corridor for the period 2010 – 2020 (Source: https://www.worldweatheronline.com/beaufort-west-weather-averages/western-cape/za, 2022).	100
Figure B.5.	The average and maximum annual wind speeds and gusts for the Beaufort West area, including the proposed powerline corridor for the period 2010 – 2020 (Source: https://www.worldweatheronline.com/beaufort-west-weather-averages/western-cape/za, 2022).....	101
Figure B.6.	The landscape character of the Central Karoo District Municipality, including the proposed powerline study area (indicated in red oval) (Source: DEA&DP, 2019).....	102

Figure B.7.	The regional topographical setting of the proposed powerline study area (indicated in green) (Source: Klapwijk, 2022).....	103
Figure B.8.	The geology of the approximate area of the proposed powerline study area (indicated in red) and immediate surrounds (Source: Council for Geoscience, 1:250 000 Map (3222 – Beaufort West, and 3322 - Oudtshoorn), 1979).....	104
Figure B.9.	Groundwater resource potential of the Central Karoo District Municipality, including the proposed powerline study area (indicated in red oval) (Source: DEA&DP, 2019)	105
Figure B.10.	The Land Type Classification of the Kwagga EGI Corridor (indicated in orange) (Land Type Survey, 1987) (Source: Van Rooyen, 2022).....	106
Figure B.11.	Soil types of the Central Karoo District Municipality, including the proposed powerline study area (approximate area indicated by red oval) (Source: DEA&DP, 2019).....	106
Figure B.12.	The proposed powerline corridor (outlined in blue) overlaid on agricultural sensitivity as identified by the Screening Tool (low = green; medium = yellow)	108
Figure B.13.	SWSAs in relation to the locality of the proposed powerline corridor (i.e. all seven of the proposed powerlines in support of the Kwagga WEFs 1-3)	110
Figure B.14.	Aquatic features mapped for the entire proposed powerline routing (indicated in red) and immediate surrounds (Source: Belcher, 2022).	112
Figure B.15.	Map depicting Aquatic Biodiversity Combined Sensitivity in and around the proposed powerline corridor (Source: DFFE Screening Tool, 2022).....	115
Figure B.16.	Vegetation mapping of the proposed powerline corridor (Source: Van Rooyen, 2022).	117
Figure B.17.	Map indicating Terrestrial Plant Species sensitivity for the proposed Section 2 of the Kwagga EGI corridor and surrounds (Source: DFFE Screening Tool, 2022).	118
Figure B.18.	Map indicating Terrestrial Animal Species sensitivity for the proposed Section 2 of the Kwagga EGI corridor and surrounds (Source: DFFE Screening Tool, 2022).	118
Figure B.19.	Map indicating Terrestrial Biodiversity Combined sensitivity for the proposed Section 2 of the Kwagga EGI corridor and surrounds (Source: DFFE Screening Tool, 2022).....	119
Figure B.20.	The Screening Tool map for Avifauna Sensitivity for the proposed Section 2 powerline corridor (Source: DFFE Screening Tool, 2022).....	123
Figure B.21.	The Screening Tool map for Archaeology and Cultural Heritage Combined Sensitivity for the proposed Section 2 powerline corridor (Source: DFFE Screening Tool, 2022).....	126
Figure B.22.	Palaeontology Sensitivity Map for the proposed Kwagga EGI projects.	127
Figure B.23.	The Screening Tool map for Palaeontology Combined Sensitivity for the proposed powerline corridor (Source: DFFE Screening Tool, 2022).....	128
Figure B.24.	Map showing Section 2 of the proposed Kwagga EGI Corridor as it relates to Civil Aviation sensitivity (Source: DFFE Screening Tool, 2022)	130
Figure B.25.	Map showing Section 2 of the proposed Kwagga EGI Corridor as it relates to Defence sensitivity (Source: DFFE Screening Tool, 2022).....	130
Figure D.1.	Projects within the 50 km radius considered for the Cumulative Impact Assessment.....	151
Figure D.2.	Guide to assessing risk/impact significance as a result of consequence and probability	153

Figure D.3. Sensitivity Map for Visual Aspects relevant to the realigned powerline route..... 195

Figure D.4. Sensitivity Map for Heritage relevant to the realigned powerline route..... 196

Figure D.5. Sensitivity Map for Palaeontology relevant to the realigned powerline route..... 196

Figure D.6. Sensitivity Map for Terrestrial and Aquatic Ecology relevant to the realigned powerline route 197

Figure D.7. Sensitivity Map for Avifauna relevant to the realigned powerline route 197

Figure D.8. Combined Sensitivity Map relevant to the re-aligned powerline route 198

Figure D.9. Combined Sensitivity and Key Features Map relevant to the re-aligned powerline route..... 198

KEY CHANGES MADE FROM THE DRAFT BA REPORT THAT WAS ISSUED FOR I&AP, STAKEHOLDER AND ORGAN OF STATE REVIEW FROM 11 JULY 2022 TO 11 AUGUST 2022

Section of Report	Key Change
BA Report and Appendices	<ul style="list-style-type: none"> The report date has been updated from “July 2022” to “October 2022”.
Executive summary	<ul style="list-style-type: none"> The DFFE reference number for the proposed authorised Eskom 132 kV Switching Substation was updated to reflect the Amendment Process it is currently subjected to. Project titles for the proposed Kwagga EGI Sections 2-4 have been updated to reflect the proposed re-alignment of the powerline route now connecting to the proposed authorised Beaufort West 132 kV-400 kV Linking Station instead of the proposed authorised Eskom 132 kV Switching Substation. Table 2 was updated with the centroid coordinates of the proposed authorized substations relevant to this BA Process, in a degrees, minutes and seconds format. Table 2 was updated with a description of the external site access and the coordinates (start, middle and end) of the proposed external access road, in a degrees, minutes and seconds format as requested by the DFFE 30-day public comment period as well as the coordinates of the realigned powerline route.
BA Report – Section A	<ul style="list-style-type: none"> The DFFE reference number for the proposed authorised Eskom 132 kV Switching Substation was updated to reflect the Amendment Process it is currently subjected to. Project titles for the proposed Kwagga EGI Sections 2-4 have been updated to reflect the proposed re-alignment of the powerline route now connecting to the proposed authorised Beaufort West 132 kV-400 kV Linking Station instead of the proposed authorised Eskom 132 kV Switching Substation. Updated Section A.11 with additional information regarding the applicability of listed activities included in the Draft BA Report. An amended application form has been submitted to the DFFE. Updated Table A.1 to reflect the revised project titles for the BA Processes being undertaken for the proposed Kwagga EGI Sections 2-4. Updated the map legend of Figure A.1 and A.2 to reflect updates regarding the Environmental Authorization received for the proposed authorized Eskom 132 kV Switching Substation and the realignment of the proposed powerline route. Figure A.1 was updated to reflect the proposed site access roads. Table A.4 in Section A.7 was updated with the centroid coordinates of the proposed authorized substations relevant to this BA Process, in a degrees, minutes and seconds format. Table A.4 which describes the start, middle and end points of the access road for the proposed 132 kV overhead transmission powerline route, was added in Section A.6. Table A.5 in Section A.7 was updated with the centroid coordinates of the proposed authorized substations relevant to this BA Process, in a degrees, minutes and seconds format. Table A.5 in Section A.7 was updated with a description of the external site access and the coordinates (start, middle and end) of the proposed external access road, in a degrees, minutes and seconds format as requested by the DFFE 30-day public comment period. Table A. 6 in Section A.11 was updated based on comments received from the DFFE during the 30-day public comment period.
BA Report – Section C	<ul style="list-style-type: none"> Updated with additional information regarding the status and progress made on the BA Report, the submission of the Application for Environmental Authorisation to the DFFE, as well as DFFE’s acknowledgment of receipt of the BA Report, and the assignment of reference numbers for the BA projects. Updated with details of the Public Participation Process undertaken thus far. Updated with a description of feedback received from the Heritage Western Cape (HWC).

Section of Report	Key Change
BA Report – Section D	<ul style="list-style-type: none"> Updated Section D.1 will additional information on the process flow for the assessment of cumulative impacts.
Comments and Responses Report	<ul style="list-style-type: none"> The comments and/or issues raised by stakeholders and Interested and Affected Parties (I&APs) following the release of the Draft BA Report for the 30-day public comment period, extending from 11 July 2022 to 11 August 2022 (excluding public holidays), together with the responses from the Basic Assessment (BA) project team were collated into a Comments and Responses Report (CRR) that was compiled in terms of Annexure 1 of the DFFE comments letter (DFFE Reference No: 14-12-16-3-3-1-2579), and which was submitted separately from the main revised Draft BA Report as per the requirements from the DFFE. Note that comments received from I&APs following the closure date of the public comment period (i.e., up to and including 11 August) have been considered and included in the CRR. The revised Draft BA Report inclusive of all relevant and required appendices is currently being re-released for a 30-day comment period, in line with Regulation 19(1)(b) of the 2014 NEMA EIA Regulations (as amended). Copies of all comments received during this review period, extending from 24 October 2022 to 24 November 2022, excluding public holidays will be addressed, as applicable and where relevant, and added to the CRR which will be incorporated into the Final BA Report to be submitted to the DFFE for decision-making.
Appendix C	<ul style="list-style-type: none"> Updated the map legend of Figure C.1 to reflect updates regarding the Environmental Authorization received for the proposed authorized Eskom 132 kV Switching Substation. Figure C.1 was updated to reflect the proposed site access roads. Figure C.1, C.2. C.5 – C.11 was updated to reflect the realigned powerline route.
Appendix E	<ul style="list-style-type: none"> Separated Appendix E. 1 - “Copies and Proof of placement of Site Notice Board” into Appendix E.1 – “Copy of site notice Board – Afrikaans”; Appendix E.2 – “Copy of site notice Board – English”, and Appendix E.3 – “Proof of placement of site notice boards”. Updated with proof of placement of the newspaper advertisements for the release of the Draft BA Reports for comment (Appendix E.4). Updated/added Appendix E.5 (Stakeholder database). Updated the database of I&APs, Stakeholders and Organs of State to reflect stages of consultation, commenting, as well as additions to the database. The approach followed for this I&AP database was guided by sections 3(3), 9, 12(1) and (2), 11 as well as 18 of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA). Erring on the side of caution as recommended by the DFFE, the names and affiliations of non-governmental I&APs are represented by an ‘XXX’ in the I&AP database (Appendix E.5). Added Appendix E. 8 (Proof of submission of the integrated heritage impact assessment (HIA) to Heritage Western Cape (HWC) and local authorities for a 30-day consultation period) Added proof of submission of the integrated Heritage Impact Assessment (HIA) to Heritage Western Cape (HWC) and local authorities for a 30-day consultation period (Appendix E.8) Added the copies and proof of correspondence sent to stakeholders for the release of the Draft Basic Assessment Report for comment (Appendix E.9) Added copies of the correspondence received from stakeholders and proof thereof during the 30-day public comment period of the Draft Basic Assessment Report (Appendix E.10) Added copies of the correspondence received from HWC and local authorities on the HIA following the 30-day consultation period (Appendix E.11) Added copies of the correspondence with DFFE regarding the changes to the Draft BA Reports, the written notification submitted to DFFE in terms of Regulation 19(1)(b) of the 2014 NEMA EIA Regulations (as amended), and DFFE’s acknowledgment of the notification received (Appendix E.12).
Appendix G	<ul style="list-style-type: none"> Updated the Environmental Management Programme (EMPr) for the powerline based on comments received from I&APs and Organs of State, following the 30-day public

Section of Report	Key Change
	<p>comment period on the Draft BA Report, with additional mitigation measures and management actions as recommended by these authorities and stakeholders.</p> <ul style="list-style-type: none"> • Table 2 in Section 1.2 was updated with the centroid coordinates of the proposed authorized substations relevant to this BA Process, in a degrees, minutes and seconds format. • Table 2 in Section 1.2 was updated with a description of the external site access and the coordinates (start, middle and end) of the proposed external access road, in a degrees, minutes and seconds format as requested by the DFFE 30-day public comment period. • Updated Figure 1 and Figure 3 to reflect the realigned powerline route, the proposed site access roads and updates regarding the Environmental Authorization received for the proposed authorized Eskom 132 kV Switching Substation.

Note from the CSIR: If sections are not mentioned in the above table, this means that either there have been no changes or no major changes to these sections.

KEY CHANGES MADE FROM THE REVISED DRAFT BA REPORT THAT WAS ISSUED FOR I&AP, STAKEHOLDER AND ORGAN OF STATE REVIEW FROM 24 OCTOBER 2022 TO 24 NOVEMBER 2022

Section of Report	Key Change
BA Report and Appendices	<ul style="list-style-type: none"> • The term “BA Report” has been updated to “Final BA Report”, where applicable. • The report date has been updated from “October 2022” to “November 2022”.
BA Report – Section A	<ul style="list-style-type: none"> • Table A. 7 in Section A.12 was updated based on comments received from the DFFE during the additional 30-day public comment period.
BA Report – Section C	<ul style="list-style-type: none"> • Updated with additional information regarding the status and progress made on the BA Report, the submission of the Application for Environmental Authorisation to the DFFE, as well as DFFE’s acknowledgment of receipt of the BA Report, and the assignment of reference numbers for the BA projects. • Updated with details of the Public Participation Process undertaken thus far. • Updated with a description of feedback received from the Heritage Western Cape (HWC).
Comments and Responses Report	<ul style="list-style-type: none"> • The comments and/or issues raised by stakeholders and Interested and Affected Parties (I&APs) following the re-release of the revised Draft BA Report for the additional 30-day public comment period, extending from 24 October 2022 to 24 November 2022 (excluding public holidays), together with the responses from the Basic Assessment (BA) project team were collated into a Comments and Responses Report (CRR) that was compiled in terms of Annexure 1 of the DFFE comments letter (DFFE Reference No: 14-12-16-3-3-1-2581), and which was submitted separately from the main Final BA Report as per the requirements from the DFFE. Note that comments received from I&APs following the closure date of the public comment period (i.e. up to and including 24 November) have been considered and included in the CRR.
Appendix E	<ul style="list-style-type: none"> • Updated with proof of placement of the newspaper advertisements for the re-release of the revised Draft BA Reports for comment (Appendix E.4). • Updated/added Appendix E.5 (Stakeholder database). Updated the database of I&APs, Stakeholders and Organs of State to reflect stages of consultation, commenting, as well as additions to the database. The approach followed for this I&AP database was guided by sections 3(3), 9, 12(1) and (2), 11 as well as 18 of the Protection of Personal Information Act, 2013 (Act No. 14 of 2013) (POPIA). Erring on the side of caution as recommended by the DFFE, the names and affiliations of non-governmental I&APs are represented by an ‘XXX’ in the I&AP database (Appendix E.5). • Added the copies and proof of correspondence sent to stakeholders for the re-release of the revised Draft basic assessment report for comment (Appendix E.13)

Section of Report	Key Change
	<ul style="list-style-type: none">• Added copies of the correspondence received from stakeholders and proof thereof during the additional 30-day public comment period of the revised Draft basic assessment report (Appendix E.14)• Added copies of the correspondence received from HWC and local authorities on the HIA following the additional 30-day consultation period (Appendix E.15)

Note from the CSIR: If sections are not mentioned in the above table, this means that either there have been no changes or minor changes made to these sections.

EXECUTIVE SUMMARY



INTRODUCTION AND PROJECT BACKGROUND

The National DFFE has granted Environmental Authorisation (EA) for the proposed Kwagga WEF 1 (DFFE Ref: 14-12-16-3-3-2-2070), Kwagga WEF 2 (DFFE Ref: 14-12-16-3-3-2-2071) and Kwagga WEF 3 (DFFE Ref: 14-12-16-3-3-2-2072) projects on 7 April 2022 i.e., one for each WEF and its associated infrastructure. The Scoping and EIA (S&EIA) processes that were undertaken for the abovementioned three WEFs extended from May 2021 to April 2022. The three Kwagga WEFs and its supporting electrical grid infrastructure is situated approximately 60 km south of Beaufort West in the Western Cape Province.

In order to facilitate the connection of the proposed authorised Kwagga WEF 1, Kwagga WEF 2 and Kwagga WEF 3 projects to the national electrical grid network, the Project Applicant, ABO Wind renewable energies (Pty) Ltd (“ABO Wind”) is proposing the construction of seven 132 kV overhead transmission powerlines and its associated electrical grid infrastructure between the proposed authorised Beaufort West 132 kV-400 kV Linking Station (DFFE Ref: 14-12-16-3-3-2-925-1) and the aforementioned WEFs. It is anticipated that the electricity generated by the proposed authorised Kwagga WEFs will be evacuated via these proposed 132 kV overhead transmission powerlines into the existing Droërivier–Proteus 400 kV overhead transmission powerline that runs parallel to the N12 in a north-south direction.

It is understood that the proposed authorised Beaufort West 132 kV-400 kV Linking Station will be constructed by South Africa Mainstream Renewable Power Developments (Pty) Ltd (“Mainstream”) in support of their proposed authorised Beaufort West WEF and Trakas WEF that are to be located on land directly adjacent to the proposed authorised Kwagga WEFs 1-3 (refer to Figure 1 below).

The Project Applicant has signed a servitude agreement and relevant powers of attorney with the landowner of the relevant Beaufort West and Trakas WEFs affected land portions and obtained agreement with Mainstream to facilitate the connection of the proposed authorised Kwagga WEFs 1-3 via 132 kV overhead transmission powerlines, and via the Beaufort West 132 kV-400 kV Linking Station to the existing Droërivier–Proteus 400 kV overhead transmission powerline that is located westwardly of the N12.

Important to note is that both the Beaufort West WEF (DFFE Ref: 12-12-20-1784-1-AM2; 12-12-20-1784-1-AM3) and the Trakas WEF (DFFE Ref: 12-12-20-1784-2-AM2; 12-12-20-1784-2-AM3), and their supporting powerline and substation infrastructure [Beaufort West 132 kV-400 kV Linking Station, 132 kV Powerline and onsite 132 kV Substation (DFFE Ref: 14-12-16-3-3-2-925-1) and Trakas 132 kV-400 kV Linking Station, 132 kV Powerline and onsite 132 kV Substation (DFFE Ref: 14-12-16-3-3-2-925-2), including the Eskom 132 kV Switching Station (DFFE Ref: 14-12-16-3-3-1-2465/AM1)], collectively referred to as “the Beaufort West Cluster”, have all received EA and were successful bidders in Round 5 of the Renewable Energy Independent Power Producer Programme (REIPPPP).

The electrical grid infrastructure (EGI) component i.e., the application for these proposed 132 kV overhead transmission powerlines required for the three proposed authorised Kwagga WEF projects did not form part of the S&EIA processes that were undertaken for each of the three WEFs during 2021. Therefore, in order to facilitate the connection of the Kwagga WEFs 1-3 to the Droërivier–Proteus 400 kV, the following **seven** 132 kV overhead transmission powerlines and associated infrastructure, located near Beaufort West in the Western Cape, are being proposed and assessed (Also referred to as **Section 1 to 7** of the proposed Kwagga EGI Corridor):

- Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Beaufort West 132 kV-400 kV Linking Station and the proposed authorised Eskom 132 kV Switching Station

(i.e., **Kwagga EGI Section 1**) – this powerline facilitates connection of Kwagga WEF 1, Kwagga WEF 2 and Kwagga WEF 3¹;

- Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Beaufort West 132 kV-400 kV Linking Station and the proposed authorised Kwagga WEF 1 (i.e., **Kwagga EGI Section 2**) – this powerline facilitates connection of Kwagga WEF 1, as well as Kwagga WEF 2 and Kwagga WEF 3 (where Kwagga WEF 1 on-site substation is used as collector)²;
- Proposed Construction of a 132 kV overhead transmission powerline between the proposed Beaufort West 132 kV-400 kV Linking Station and the proposed authorised Kwagga WEF 2 (i.e., **Kwagga EGI Section 3**) – this powerline facilitates connection of Kwagga WEF 2, as well as Kwagga WEF 3 (where Kwagga WEF 2 on-site substation is used as a collector)²;
- Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Beaufort West 132 kV-400 kV Linking Station and the proposed authorised Kwagga WEF 3 (i.e., **Kwagga EGI Section 4**) – this powerline facilitates connection of Kwagga WEF 3²;
- Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Kwagga WEF 1 and the proposed authorised Kwagga WEF 2 (i.e., **Kwagga EGI Section 5**) – this powerline facilitates connection of Kwagga WEF 2¹;
- Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Kwagga WEF 1 and the proposed authorised Kwagga WEF 3 (i.e., **Kwagga EGI Section 6**) – this powerline facilitates connection Kwagga WEF 3¹; and
- Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Kwagga WEF 2 and the proposed authorised Kwagga WEF 3 (i.e., **Kwagga EGI Section 7**) – this powerline facilitates connection Kwagga WEF 3¹.

It is proposed that each of the three Kwagga WEFs will have a dedicated 132 kV powerline that will connect each WEF to the Droërvier–Proteus 400 kV powerline via the authorised Beaufort West 132 kV-400 kV Linking Station. Overhead powerlines between each of the Kwagga WEFs have also been proposed. This will ensure that each WEF is a viable stand-alone project. The above approach also ensures that any two of the three proposed Kwagga WEFs can connect to the Droërvier–Proteus 400 kV powerline, as this approach accommodates for the potential scenario in the event that only one or two of the three proposed Kwagga WEFs receive preferred bidder status in terms of the REIPPPP and therefore will materialise from a construction perspective. This approach is based on the worst-case scenario (i.e., assessment of seven separate 132 kV overhead transmission powerlines). It has also been structured accordingly to meet the requirements of the REIPPPP which requires issuing of seven separate EAs for these proposed powerline projects.

An integrated Public Participation Process is being undertaken for the proposed projects.

The Draft BA Reports were released to all Interested and Affected Parties (I&APs), Organs of State and stakeholders for a 30-day comment period that extended from **11 July 2022 to 11 August 2022**, excluding public holidays. All comments submitted during the 30-day review have been incorporated into a detailed Comments and Responses Report (CRR), and were addressed, as applicable and where relevant. Note however that following

¹ Note that the Final Basic Assessment Reports for the proposed Kwagga EGI Section 1 powerline (DFFE Ref: 14/12/16/3/3/1/2578), the proposed Kwagga EGI Section 5 powerline (DFFE Ref: 14/12/16/3/3/1/2582), the proposed Kwagga EGI Section 6 powerline (DFFE Ref: 14/12/16/3/3/1/2583) and the proposed Kwagga EGI Section 7 powerline (DFFE Ref: 14/12/16/3/3/1/2584) have been submitted to DFFE for decision-making on 11 October 2022.

² Following receipt of comments from Mainstream Renewable Power South Africa during the 30-day public comment period on the Draft Basic Assessment Reports for the proposed Kwagga EGI Section 2 (DFFE Ref: 14/12/16/3/3/1/2579), Kwagga EGI Section 3 (DFFE Ref: 14/12/16/3/3/1/2580) and Kwagga EGI Section 4 (DFFE Ref: 14/12/16/3/3/1/2581) which extended from 11 July 2022 to 11 August 2022 (excluding public holidays), the Project Applicant was required to re-align the proposed powerline route within the already assessed corridor i.e., to connect the proposed authorised Kwagga WEF 1 (DFFE Ref: 14-12-16-3-3-2-2070), Kwagga WEF 2 (DFFE Ref: 14-12-16-3-3-2-2071) and Kwagga WEF 3 (DFFE Ref: 14-12-16-3-3-2-2072) projects directly to the authorised Beaufort West 132 kV-400 kV Linking Station (DFFE Ref: 14-12-16-3-3-2-925-1). Following from liaison with DFFE on 6 October 2022 regarding these changes, written notification was submitted in terms of Regulation 19(1)(b) of the 2014 NEMA EIA Regulations (as amended) that the revised Draft BA Reports, inclusive of specialist reports and the EMPr will be subjected to another public comment period of 30 days (i.e., **24 October 2022 to 24 November 2022**) after which the Final BA Reports will be submitted to DFFE for decision-making within 140 days of receipt of the application by the DFFE.

receipt of comments from Mainstream Renewable Power South Africa during the 30-day public comment period on the Draft BA Reports for the proposed Kwagga EGI Section 2 (DFFE Ref: 14/12/16/3/3/1/2579), Kwagga EGI Section 3 (DFFE Ref: 14/12/16/3/3/1/2580) and Kwagga EGI Section 4 (DFFE Ref: 14/12/16/3/3/1/2581) which extended from 11 July 2022 to 11 August 2022 (excluding public holidays), the Project Applicant was required to re-align the proposed powerline route within the already assessed corridor i.e., to connect the proposed authorised Kwagga WEF 1 (DFFE Ref: 14-12-16-3-3-2-2070), Kwagga WEF 2 (DFFE Ref: 14-12-16-3-3-2-2071) and Kwagga WEF 3 (DFFE Ref: 14-12-16-3-3-2-2072) projects directly to the proposed authorised Beaufort West 132 kV-400 kV Linking Station (DFFE Ref: 14-12-16-3-3-2-925-1), instead of to the proposed authorised Eskom 132 kV Switching Station (DFFE Ref: 14-12-16-3-3-1-2465/AM1). Following from liaison with DFFE on 6 October 2022 regarding these changes, written notification was submitted in terms of Regulation 19(1)(b) of the 2014 NEMA EIA Regulations (as amended) that these revised Draft BA Reports, inclusive of specialist reports and the EMPr as well as any other relevant and required appendices will be subjected to another public comment period of 30 days (i.e., **24 October 2022 to 24 November 2022**) after which the Final BA Reports will be submitted to DFFE for decision-making within 140 days of receipt of the application by the DFFE. All comments submitted during the 30-day review have been incorporated into the detailed CRR, and addressed, as applicable and where relevant, and appended to these Final BA Reports.

PROJECT LOCATION

The seven proposed Kwagga 132 kV overhead transmission powerlines projects (i.e., Kwagga EGI Sections 1 to 7) will be located approximately 60 km south of the Beaufort West town in the Western Cape Province. The entire powerline corridor traverses both the Prince Albert Local Municipality and the Beaufort West Local Municipality, with the exception of the Kwagga EGI Section 1, which is only located in the Prince Albert Local Municipality. The locality of the Kwagga EGI corridor and the proposed 132 kV powerline projects is depicted in Figure A below.

The 132 kV overhead transmission powerline project that is the subject of this BA Report, is represented by the section of the Kwagga EGI Corridor indicated between Point A and Point C in Figure A. For purposes of this BA process, this proposed powerline project is referred to as **Section 2 of the Kwagga EGI Corridor**.

The farm portions that will be affected by this proposed powerline project are:

- Remainder of the Farm Dwaalfontein Wes No. 377 (Surveyor General 21 Digit Code: C00900000000037700000);
- Portion 1 of the Farm Dwaalfontein Wes No. 377 (Surveyor General 21 Digit Code: C00900000000037700001);
- Remainder of the Farm Dwaalfontein No. 379 (Surveyor General 21 Digit Code: C00900000000037900000);
- Portion 1 of the Farm Witpoortje No. 16 (Surveyor General 21 Digit Code: C0610000000001600001); and
- Portion 1 of the Farm Trakas Kuilen No. 15 (Surveyor General 21 Digit Code: C0610000000001500001).

FINAL BASIC ASSESSMENT REPORT: Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Kwagga WEF 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station (i.e., Kwagga EGI Section 2), near Beaufort West in the Western Cape Province

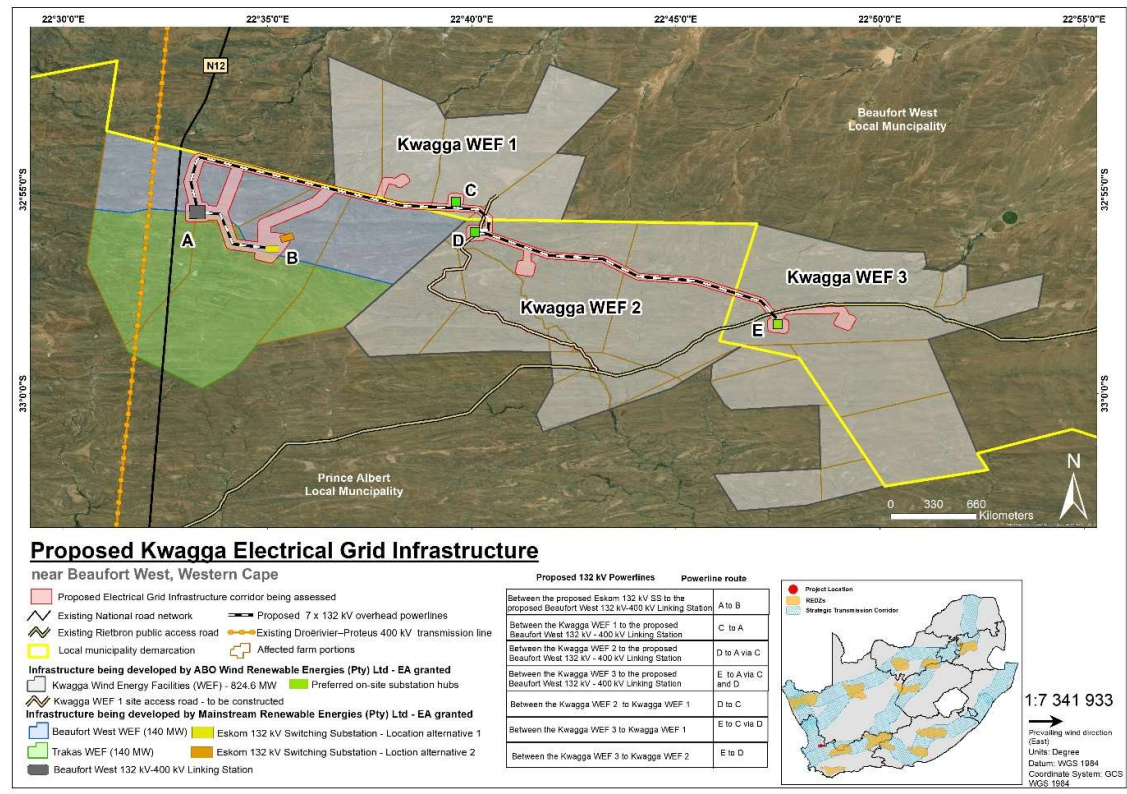


Figure A. Locality of the Kwagga EGI Corridor comprising the seven proposed 132 kV overhead transmission powerline projects (i.e., Kwagga EGI Section 1 – 7)

PROJECT BASIC ASSESSMENT TEAM

In accordance with Regulation 12 (1) of the 2014 NEMA EIA Regulations (as amended), the Project Applicant has appointed the Council for Scientific and Industrial Research (CSIR) to undertake the required BA Processes in order to determine the biophysical, social and economic impacts associated with undertaking the proposed development. The project team, including the relevant specialists, is indicated in Table A below.

Table A. Project Team for the Kwagga Powerline BA Processes

Name	Organisation	Role/ Specialist Study
CSIR Project Team		
Paul Lochner (<i>Registered EAP (2019/745)</i>)	CSIR	EAP and Project Leader
Rohaida Abed (<i>Pr.Sci.Nat.</i>)	CSIR	Project Review
Lizande Kellerman (<i>Pr.Sci.Nat.</i>)	CSIR	Project Manager
Dhiveshni Moodley (<i>Cand.Sci.Nat.</i>)	CSIR	Project Officer
Specialists		
Johann Lanz (<i>Pr.Sci.Nat.</i>)	Private	Agricultural Compliance Statement
Menno Klapwijk	Bapela Cave Klapwijk cc	Visual Impact Assessment
Dr Jayson Orton	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology, Cultural Landscape and Palaeontology)
Dr. John Almond	Natura Viva cc	

Name	Organisation	Role/ Specialist Study
Dr Noel van Rooyen (<i>Pr.Sci.Nat.</i>) and Prof Gretel van Rooyen (<i>Pr.Sci.Nat.</i>)	Ekotrust cc	Terrestrial Biodiversity and Species Impact Assessment
Antonia Belcher (<i>Pr.Sci.Nat.</i>)	Private	Aquatic Biodiversity Impact Assessment
Chris van Rooyen and Albert Froneman (<i>Pr.Sci.Nat.</i>)	Chris van Rooyen Consulting	Avifauna Impact Assessment
Lizande Kellerman (<i>Pr.Sci.Nat.</i>) and Dhiveshni Moodley (<i>Cand.Sci.Nat.</i>)	CSIR	Civil Aviation Site Sensitivity Verification
Lizande Kellerman (<i>Pr.Sci.Nat.</i>) and Dhiveshni Moodley (<i>Cand.Sci.Nat.</i>)	CSIR	Defence Site Sensitivity Verification

PROJECT DESCRIPTION

It is important to point out at the outset that the exact specifications of the proposed project components will be determined during the detailed engineering phase (subsequent to the issuing of EAs, should they be granted for the proposed projects). As noted above, seven separate BA Reports have been compiled for the seven proposed 132 kV overhead transmission powerlines that are required to facilitate the connection of the three proposed authorised Kwagga WEFs to the national electrical grid network, via the Beaufort West 132 kV-400 kV Linking Station, to the existing Droërivier–Proteus 400 kV overhead transmission powerline that is located westwardly of the N12.

This BA Report only addresses the 132 kV overhead transmission powerline and associated EGI between the proposed authorised Beaufort West 132 kV-400 kV Linking Station and the proposed authorised Kwagga WEF 1 (i.e., **Kwagga EGI Section 2**) – this powerline facilitates connection of Kwagga WEF 1, as well as Kwagga WEF 2 and Kwagga WEF 3 (where Kwagga WEF 1 on-site substation is used as collector) (Figure B).

The proposed powerline project will make use electricity transmission and distribution technology generated from wind energy and transmit it to the National Grid. Once the proposed authorised Kwagga WEF projects are awarded a Power Purchase Agreement (PPA), the proposed powerline project will transmit electricity for a minimum period of 20 years. The construction phase for the proposed project is expected to extend 12 to 18 months. A description of the key components relevant to this proposed powerline project is provided in Table B below.

FINAL BASIC ASSESSMENT REPORT: Proposed Construction of a 132 kV overhead transmission powerline between the proposed authorised Kwagga WEF 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station (i.e., Kwagga EGI Section 2), near Beaufort West in the Western Cape Province

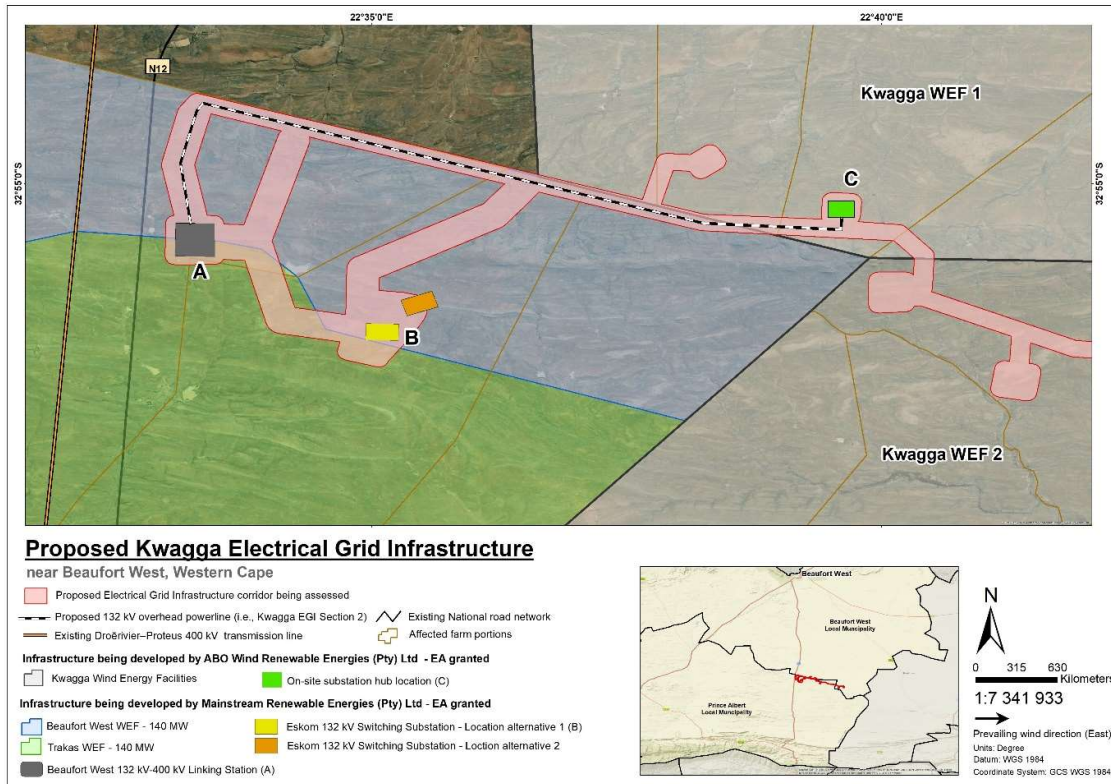


Figure B. Locality map showing the proposed 132 kV overhead powerline in relation to the Kwagga EGI Corridor (i.e., Kwagga EGI Section 2 that is the subject of this BA Report), which extends between the proposed authorised Kwagga WEF 1 and the proposed authorised Beaufort West 132 kV-400 kV Linking Station

Table B. Project Components for the proposed 132 kV Overhead Powerline

Component	Description
Line/pylon height	Up to 30 m
Line capacity	Up to 132 kV
Pylon type	Self-supporting suspension structures or guyed monopoles. Insulators will be used to connect the conductors to the towers
Servitude length	12 km
Servitude width	<p>The registered servitude will be up to 50 m wide, or where multiple adjacent powerlines occur, in line with guideline and requirements for 132 kV powerlines stipulated in the 2011 Eskom Distribution Guide Part 19.</p> <p><u>Note</u> that the entire servitude will <u>not</u> be cleared of vegetation. Vegetation clearance within the servitude will be undertaken in compliance with relevant standards and specifications.</p> <p>Specialists were required to assess an approximately 300 m wide corridor for the portion of the proposed powerline route that traverses the proposed authorised Kwagga WEFs 1-3 project sites, and an approximately 500 m wide corridor for the proposed powerline route that traverses the neighbouring Mainstream Beaufort West and Trakas WEF project sites.</p>
Associated Infrastructure	
Associated electrical infrastructure including but not limited to feeder bays, busbars, new transformer bays (up to 500 MVA) and possible extension to the	<p>The following substations are relevant to this BA project:</p> <ul style="list-style-type: none"> Proposed authorised Beaufort West 132 kV-400 kV Linking Station (Footprint: approximately 20 ha)

Component	Description
existing footprint at the proposed authorised Beaufort West 132 kV-400 kV Linking Station.	<ul style="list-style-type: none"> ○ Centroid: 32° 55' 32.9232"S (Latitude); 22° 33' 16.0488"E (Longitude) ○ Proposed authorised Kwagga WEF 1 On-site Substation Hub (Footprint: approximately 5.21 ha) <ul style="list-style-type: none"> ○ Centroid: 32° 55' 14.588" S (Latitude); 22° 39' 36.310" E (Longitude)
Service roads	<p>There are a number of existing gravel farm roads (some just jeep tracks) with widths ranging between 4 m and 5 m located around and within the proposed Kwagga powerline corridor. It is anticipated that a service road of approximately 4 m wide (usually only jeep tracks) will be required below the powerline. The coordinates for the proposed access road that will be constructed are as follows:</p> <ul style="list-style-type: none"> • Start: 32° 55' 15.4812"S (Latitude); 22° 39' 36.738"E (Longitude) • Middle: 32° 54' 50.0868"S (Latitude); 22° 35' 56.616"E (Longitude) • End: 32° 55' 23.988"S (Latitude); 22° 33' 13.608"E (Longitude)
Proximity to grid connection	<p>As mentioned in Section A.1 above, this proposed 132 kV overhead powerline will facilitate the connection of the proposed authorised Kwagga WEFs 1-3 to the existing Droërvier–Proteus 400 kV overhead transmission powerline, via the proposed authorised Beaufort West 132 kV-400 kV Linking Station. The proposed 132 kV powerline is located approximately 1 km east of the existing Droërvier–Proteus 400 kV overhead transmission powerline.</p>

NEED FOR THE BA

As noted above, in terms of the 2014 NEMA EIA Regulations published in GN R326, R327, R325 and R324, a BA process is required for the proposed powerline project. The need for the BA is triggered by, amongst others, the inclusion of Activity 11 listed in GN R327 (Listing Notice 1):

- *“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”.*

Section A of this Final BA Report contains the detailed list of activities contained in GN R327 and R324 which are triggered by the various project components and thus form part of this BA Process.

The purpose of the BA is to identify, assess and report on any potential impacts relating to the proposed project, if implemented, may have on the receiving environment. The BA therefore needs to show the Competent Authority, the DFFE; and the Project Applicant, ABO Wind renewable energies (Pty) Ltd, what the consequences of their choices will be in terms of impacts on the biophysical and socio-economic environment and how such impacts can be, as far as possible, enhanced or mitigated and managed as the case may be.

IMPACT ASSESSMENT

As indicated in Table A above, a total of seven specialist studies were undertaken as part of the BA Process. Two site sensitivity verification assessments were also undertaken for Civil Aviation and Defence.

The full specialist studies are provided in Appendix D of this Final BA Report. Section B of this report provides a summary of the affected environment associated with these studies; and Section D provides a summary of the impact assessments conducted by the specialists.

A summary of the specialist studies is outlined below.

Agriculture

The Agriculture Compliance Statement was undertaken by Johann Lanz to inform the outcome of this BA from an agricultural and soils perspective. The complete Agriculture Compliance Statement is included in Appendix D.1 of the BA Report.

The proposed electrical grid infrastructure has insignificant agricultural impact for two reasons:

- There is no loss of future agricultural production potential under transmission powerlines because all agricultural activities that are viable in this environment, can continue completely unhindered underneath transmission powerlines. The direct, permanent, physical footprint of the development that has any potential to interfere with agriculture, including a service track below the lines, is insignificantly small within an agricultural environment of large farms with low density grazing.
- The affected land across the entire corridor has very limited agricultural production potential, anyway.

Two potential negative agricultural impacts have been identified. These impacts are described below and apply to these proposed powerline projects, and other associated infrastructure:

- Minimal disturbance to agricultural land use activities - This impact is relevant mainly in the construction and decommissioning phases. No further disturbance of agricultural land use occurs in the operational phase.
- Soil degradation - Soil can be degraded by impacts in three different ways: erosion; topsoil loss; and contamination. Erosion can occur as a result of the alteration of the land surface run-off characteristics, which can be caused by construction related land surface disturbance, vegetation removal, and the establishment of hard surface areas including roads. Loss of topsoil can result from poor topsoil management during construction related excavations. Hydrocarbon spillages from construction activities can contaminate soil. Soil degradation will reduce the ability of the soil to support vegetation growth. This impact is relevant only during the construction and decommissioning phases.

The potential cumulative agricultural impact of importance is a regional loss (including by degradation) of agricultural land, with a consequent decrease in agricultural production. There are a number of renewable energy developments that are leading to loss of agricultural grazing land in the area. However, because this overhead powerline itself leads to insignificant agricultural land loss, its cumulative impact must also logically be insignificant. It therefore does not make sense to conduct a more formal assessment of the development's cumulative impacts as per DFFE requirements for cumulative impacts. Much more electricity grid infrastructure than currently exists, or is currently proposed, can be accommodated before acceptable levels of change in terms of loss of production potential are exceeded. In reality, the landscape in this environment could be covered with powerlines and agricultural production potential would not be affected.

Due to the considerations discussed above, the cumulative impact of loss of future agricultural production potential can confidently be assessed as not having an unacceptable negative impact on the area. In terms of cumulative impact, the proposed development is therefore acceptable, and it is therefore recommended that it be approved.

Therefore, from an agricultural impact point of view, it is recommended that the proposed powerline development be approved.

Visual Impact Assessment

The Visual Impact Assessment was undertaken by Menno Klapwijk to inform the outcome of this BA from a visual perspective. The complete Visual Impact Assessment is included in Appendix D.2 of this BA Report.

The potential visual impacts resulting from the proposed powerline projects on landscape features and receptors are listed below for each of the project phases, including cumulative impacts. The potential visual impacts would be identical for each of the seven proposed powerlines. The impacts identified are direct and cumulative impacts. No indirect impacts have been identified.

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<i>DIRECT IMPACTS - CONSTRUCTION PHASE</i>		

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<ul style="list-style-type: none"> Visual intrusion by 132 kV overhead transmission powerline and its associated electrical grid infrastructure on visual and landscape receptors 	Low risk (Level 4)	Low risk (Level 4)
DIRECT IMPACTS - OPERATIONAL PHASE		
<ul style="list-style-type: none"> Visual intrusion by 132 kV overhead transmission powerline and its associated electrical grid infrastructure on visual and landscape receptors 	Moderate risk (Level 3)	Moderate risk (Level 3)
DIRECT IMPACTS - DECOMMISSIONING PHASE		
<ul style="list-style-type: none"> Visual intrusion by 132 kV overhead transmission powerline and its associated electrical grid infrastructure on visual and landscape receptors 	Low risk (Level 4)	Very low risk (Level 5)
CUMULATIVE IMPACTS - CONSTRUCTION PHASE		
<ul style="list-style-type: none"> Visual intrusion by 132 kV overhead transmission powerline and its associated electrical grid infrastructure on visual and landscape receptors 	Moderate risk (Level 3)	Low risk (Level 4)
CUMULATIVE IMPACTS - OPERATIONAL PHASE		
<ul style="list-style-type: none"> Visual intrusion by 132 kV overhead transmission powerline and its associated electrical grid infrastructure on visual and landscape receptors 	Moderate risk (Level 3)	Moderate risk (Level 3)
CUMULATIVE IMPACTS - DECOMMISSIONING PHASE		
<ul style="list-style-type: none"> Visual intrusion by 132 kV overhead transmission powerline and its associated electrical grid infrastructure on visual and landscape receptors 	Low risk (Level 4)	Very low risk (Level 5)

Overall, the Visual Impact Assessment concluded that there are no fatal flaws from a visual perspective arising from the proposed project, and it is therefore recommended that the proposed powerline project should receive authorisation, provided the mitigation measures are implemented as a condition of approval.

Heritage Impact Assessment (Archaeology and Cultural Landscape)

The Heritage Impact Assessment was undertaken by Dr Jayson Orton to inform the outcome of this BA from an archaeology and cultural landscape perspective. As noted above, an integrated Heritage Impact Assessment containing Archaeology, Cultural Landscape and Palaeontology has been undertaken for the project in line with the requirements of HWC. However, for ease of reference, this section only deals with the Archaeology and Cultural Landscape. The complete Heritage Impact Assessment is included in Appendix D.3 of this BA Report.

The potential impacts identified in the Heritage Impact Assessment include direct and cumulative impacts during the construction, operational and decommissioning phases. No indirect impacts are anticipated. The impacts identified are listed below.

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
DIRECT IMPACTS - CONSTRUCTION PHASE		
<ul style="list-style-type: none"> Impact 1: Potential damage or destruction of archaeological materials/sites 	Low risk (Level 4)	Very low risk (Level 5)
<ul style="list-style-type: none"> Impact 2: Potential damage or destruction of graves 	Low risk (Level 4)	Very low risk (Level 5)
<ul style="list-style-type: none"> Impact 3: Intrusion of powerlines and electrical equipment into the cultural landscape 	Very low risk (Level 5)	Very low risk (Level 5)
DIRECT IMPACTS - OPERATIONAL PHASE		
<ul style="list-style-type: none"> Impact 4: Intrusion of powerlines and electrical equipment into the cultural landscape 	Very low risk (Level 5)	Very low risk (Level 5)
DIRECT IMPACTS - DECOMMISSIONING PHASE		
<ul style="list-style-type: none"> Impact 5: Intrusion of powerlines and electrical equipment into the cultural landscape 	Very low risk (Level 5)	Very low risk (Level 5)
CUMULATIVE IMPACTS – CONSTRUCTION; OPERATIONAL AND DECOMMISSIONING PHASES		

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
DIRECT IMPACTS - CONSTRUCTION PHASE		
• Impact 6: Potential damage or destruction of archaeological materials/sites, buildings and graves	Low risk (Level 4)	Very low risk (Level 5)
• Impact 7: Intrusion of powerlines and electrical equipment into the cultural landscape	Moderate (Level 3)	Moderate (Level 3)

The Heritage Impact Assessment concluded that there are no significant concerns for this project and, based on current information, there are no areas located within the assessed powerline corridor that require protection. Because no significant impacts to culturally significant heritage resources are anticipated and impacts of low significance can be easily managed or mitigated, it is recommended that the proposed powerline project be authorised in full.

Heritage Impact Assessment (Palaeontology)

The Palaeontology Impact Assessment was undertaken by Dr John Almond to inform the outcome of this BA from a palaeontological perspective. As noted above, an integrated Heritage Impact Assessment containing Archaeology, Cultural Landscape and Palaeontology has been undertaken for the project in line with the requirements of HWC. However, for ease of reference, this section only deals with the Palaeontology. The complete Heritage Impact Assessment is included in Appendix D.3 of this BA Report.

The potential impacts identified during the Palaeontology Impact Assessment are the same for all seven proposed powerline projects. The key impacts on local palaeontological heritage resources identified are direct and relate to the potential disturbance, damage, destruction or sealing-in of scientifically-important and legally-protected fossils preserved at or beneath the surface of the ground due to construction phase excavations, and ground clearance. The impacts identified only apply to the construction phase of the proposed developments since further significant impacts on fossil heritage during the planning, operational and decommissioning phases of the powerlines are not anticipated. Cumulative impacts are also identified, as indicated below.

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
DIRECT IMPACTS - CONSTRUCTION PHASE		
• Disturbance, damage or destruction of fossils within the development footprint due to excavations and surface clearance	Low risk (Level 4)	Very low risk (Level 5)
CUMULATIVE IMPACTS - CONSTRUCTION PHASE		
• Disturbance, damage or destruction of fossils within the development footprint due to excavations and surface clearance	Moderate risk (Level 3)	Low risk (Level 4)

As a consequence of (1) the paucity of irreplaceable, unique or rare fossil remains within the development footprint, as well as (2) the extensive superficial sediment cover overlying most potentially-fossiliferous bedrocks within the proposed powerline corridor, the overall impact significance of the construction phase of the proposed powerlines regarding legally-protected palaeontological heritage resources is assessed as very low (negative status) with mitigation, and low (negative status) without mitigation. Confidence levels for this assessment are medium, given the generally low exposure levels of potentially-fossiliferous bedrocks.

In terms of cumulative impacts, it is concluded that as far as fossil heritage resources are concerned, the proposed powerline projects, whether considered individually or together, will not result in an unacceptable loss or unacceptable additional impacts, considering all the renewable energy projects and its associated electrical grid infrastructure proposed in the area. This analysis only applies provided that all the proposed monitoring and mitigation recommendations made for all these various projects are consistently and fully implemented.

Therefore, there are no identified fatal flaws and no objections on palaeontological heritage grounds to authorisation of the proposed powerline projects.

Terrestrial Biodiversity and Species Impact Assessment

The Terrestrial Biodiversity and Species Assessment was undertaken by Dr Noel van Rooyen and Prof Gretel van Rooyen to inform the outcome of this BA from a terrestrial biodiversity and species perspective. The complete Terrestrial Biodiversity and Species Assessment is included in Appendix D.4 of this BA Report.

The potential impacts identified as part of the Terrestrial Biodiversity and Species Assessment are the same for all seven proposed powerline projects. A number of direct, indirect and cumulative impacts on the localised and broader ecology of the region can be identified as a consequence of the implementation of the proposed project. These impacts are noted below.

Construction Phase – Direct Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
• Impact 1: The clearing of natural vegetation	Low risk (Level 4)	Low risk (Level 4)
• Impact 2: The loss of threatened, protected & endemic plant and animal species	Low risk (Level 4)	Low risk (Level 4)
• Impact 3: Loss of faunal habitat	Low risk (Level 4)	Very Low risk (Level 5)
• Impact 4: Direct faunal mortalities	Low risk (Level 4)	Very Low risk (Level 5)
• Impact 5: Increased dust deposition	Low risk (Level 4)	Very Low risk (Level 5)
• Impact 6: Increased human activity and noise levels	Moderate risk (Level 3)	Very Low risk (Level 5)

Operational Phase – Direct Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
• Impact 7: Direct faunal mortalities	Very Low risk (Level 5)	Very Low risk (Level 5)

Decommissioning Phase – Direct Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
• Impact 8: Direct faunal mortalities	Low risk (Level 4)	Very Low risk (Level 5)
• Impact 9: Increased dust deposition	Low risk (Level 4)	Very Low risk (Level 5)

Construction Phase - Indirect Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
• Impact 10: Establishment of alien vegetation	Low risk (Level 4)	Very Low risk (Level 5)
• Impact 11: Increased erosion and water run-off	Low risk (Level 4)	Very Low risk (Level 5)

Operational Phase - Indirect Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
• Impact 12: Establishment of alien vegetation	Low risk (Level 4)	Very Low risk (Level 5)

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
● Impact 13: Increased erosion and water run-off	Low risk (Level 4)	Very Low risk (Level 5)

Construction and Operational Phases – Cumulative Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
● Impact 14: Loss of vegetation, habitat and threatened species	Moderate risk (Level 3)	Low risk (Level 4)
● Impact 15: Compromising integrity of CBA, ESA and NPAES	Moderate risk (Level 3)	Low risk (Level 4)
● Impact 16: Reduced ability to meet conservation obligations & targets	Moderate risk (Level 3)	Low risk (Level 4)
● Impact 17: Loss of landscape connectivity and disruption of broad-scale ecological processes	Low risk (Level 4)	Low risk (Level 4)

The overall impact significance (with the implementation of mitigation measures) associated with the proposed powerline project was rated as low to very low during the construction, operational and decommissioning phases for direct impacts. The same trend applies to the cumulative and indirect impacts.

Given the low impact significance and low sensitivity rating for many of the habitats means the project could go ahead without major constraints, provided the mitigation measures and management actions proposed to conserve protected fauna and flora on the site are taken into consideration. The specialists thus recommend authorisation of the project provided all mitigation measures are implemented.

Aquatic Biodiversity Impact Assessment

The Aquatic Biodiversity Impact Assessment was undertaken by Antonia Belcher to inform the outcome of this BA from an aquatic biodiversity perspective. The complete Aquatic Biodiversity Assessment is included in Appendix D.5 of this BA Report.

The potential impacts identified as part of the Aquatic Biodiversity Impact Assessment are the same for all seven proposed powerline projects. A number of direct, indirect and cumulative impacts on the localised and broader ecology of the region can be identified as a consequence of the implementation of the proposed project. These impacts are noted below.

Construction Phase – Direct Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
● Impact 1: Disturbance of aquatic habitats within the watercourses with the associated impact to sensitive aquatic biota	Very Low (Level 5)	Very Low (Level 5)
● Impact 2: Increased sedimentation and risks of contamination of surface water runoff during construction	Very Low (Level 5)	Very Low (Level 5)
● Impact 3: Demand for water for construction could place stress on the existing available water resources	Very Low (Level 5)	Very Low (Level 5)

Operational Phase – Direct Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
● Impact 4: Ongoing disturbance of aquatic features and associated vegetation along access roads or adjacent to the infrastructure that needs to be maintained	Very Low (Level 5)	Very Low (Level 5)

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<ul style="list-style-type: none"> Impact 5: Disturbance of cover vegetation and soil and modified runoff characteristics that have the potential to result in erosion of hillslopes and watercourses and invasion of disturbed areas with alien vegetation 	Very Low (Level 5)	Very Low (Level 5)

Decommissioning Phase – Direct Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<ul style="list-style-type: none"> Impact 6: Increased disturbance of aquatic habitat due to the increased activity on the site 	Very Low (Level 5)	Very Low (Level 5)
<ul style="list-style-type: none"> Impact 7: Increased sedimentation and risks of contamination of surface water runoff 	Very Low (Level 5)	Very Low (Level 5)

Construction, Operational and Decommissioning Phases – Cumulative Impacts

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<ul style="list-style-type: none"> Impact 8: Increased disturbance of aquatic habitat due to the increased activity in the wider area 	Very Low (Level 5)	Very Low (Level 5)
<ul style="list-style-type: none"> Impact 9: Degradation of ecological condition of aquatic ecosystems 	Very Low (Level 5)	Very Low (Level 5)
<ul style="list-style-type: none"> Impact 10: Increased disturbance of aquatic habitat due to the increased activity in the wider area 	Very Low (Level 5)	Very Low (Level 5)

The Aquatic Biodiversity Impact Assessment has concluded that there is no reason from a freshwater perspective, why the proposed activity (with the implementation of the above-mentioned mitigation measures) should not be authorized. The proposed powerline is located in high-lying areas where limited aquatic features occur. It is also possible to span the watercourses where the proposed powerline needs to cross them.

Therefore, the potential aquatic ecosystem impacts of the proposed powerline are thus likely to be Very Low in terms of any potential impact on aquatic ecosystem integrity for all phases of the proposed development as the proposed works avoid the delineated aquatic features as well as the recommended buffer area.

Avifauna Assessment

The Avifauna Impact Assessment was undertaken by Chris van Rooyen and Albert Froneman to inform the outcome of this BA from an avifaunal perspective. The complete Avifauna Impact Assessment is included in Appendix D.6 of this BA Report.

The potential impacts identified during the Avifauna Impact Assessment are the same for all seven proposed powerline projects. The following direct and cumulative impacts for the construction, operational and decommissioning phases were identified.

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<i>DIRECT IMPACTS - CONSTRUCTION PHASE</i>		
<ul style="list-style-type: none"> Impact 1: Displacement due to disturbance associated with the construction of the 132 kV grid connection and associated substations 	Moderate risk (Level 3)	Low risk (Level 4)
<ul style="list-style-type: none"> Impact 2: Displacement due to habitat transformation associated with the construction of the 132 kV grid connection and associated substations 	Low risk (Level 4)	Low risk (Level 4)
<i>DIRECT IMPACTS - OPERATIONAL PHASE</i>		
<ul style="list-style-type: none"> Impact 1: Mortality of powerline sensitive avifauna through electrocution in the on-site substations 	Low risk (Level 4)	Very low risk (Level 5)

Impact	Significance / Ranking (Pre-Mitigation)	Significance / Ranking (Post-Mitigation)
<i>DIRECT IMPACTS - CONSTRUCTION PHASE</i>		
• Impact 2: Collision mortality of powerline sensitive species due to the 132 kV grid connections	High risk (Level 2)	Moderate risk (Level 3)
<i>DIRECT IMPACTS - DECOMMISSIONING PHASE</i>		
• Impact 1: The noise and movement associated with the activities at the study area will be a source of disturbance which would lead to the displacement of avifauna from the area	Moderate risk (Level 3)	Low risk (Level 4)
<i>CUMULATIVE IMPACTS - CONSTRUCTION PHASE</i>		
• Impact 1: Displacement due to disturbance associated with the construction of the 132 kV grid connection and associated substations	Moderate risk (Level 3)	Low risk (Level 4)
• Impact 2: Displacement due to habitat transformation associated with the construction of the 132 kV grid connection and associated substations	Moderate risk (Level 3)	Low risk (Level 4)
<i>CUMULATIVE IMPACTS - OPERATIONAL PHASE</i>		
• Impact 3: Mortality of powerline sensitive avifauna through electrocution in the on-site substations	Low risk (Level 4)	Very low risk (Level 5)
• Impact 4: Collision mortality of powerline sensitive species due to the 132 kV grid connections	High risk (Level 2)	Moderate risk (Level 3)
<i>CUMULATIVE IMPACTS - DECOMMISSIONING PHASE</i>		
• Impact 5: The noise and movement associated with the activities at the study area will be a source of disturbance which would lead to the displacement of avifauna from the area	Moderate risk (Level 3)	Low risk (Level 4)

The expected impacts of the proposed powerline construction were rated to be Low to Moderate negative pre-mitigation. However, with appropriate mitigation, the overall post-mitigation significance of all the identified impacts for should be reduced to Low for all phases of the project. It is therefore recommended that the activity is authorised, on condition that the proposed mitigation measures as detailed in the Avifauna Impact Assessment and included in the Environmental Management Programme (EMPr) are strictly implemented.

EAP'S RECOMMENDATION

No negative impacts have been identified within this BA that, in the opinion of the EAPs who have conducted this BA Process, should be considered "fatal flaws" from an environmental perspective, and thereby necessitate substantial re-design or termination of the project. This echoes the findings of the specialists as summarised above.

Section 24 of the Constitutional Act states that "everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that prevents pollution and ecological degradation; promotes conservation; and secures ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." Based on this, this BA was undertaken to ensure that these principles are met through the inclusion of appropriate management and mitigation measures, and monitoring requirements. These measures will be undertaken to promote conservation by avoiding the sensitive environmental features present on site and through appropriate monitoring and management plans (refer to the Environmental Management Programme (EMPr) included in Appendix G of this BA Report).

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

SUMMARY OF KEY IMPACT ASSESSMENT FINDINGS

Based on the findings of the specialist assessments, the proposed powerline project is considered to have an overall **Low to Very Low** negative environmental impact (with the implementation of respective mitigation and enhancement measures). Table C below provides a summary of the impact assessment for the proposed project post-mitigation for direct negative impacts. Table D provides the same information for the cumulative impacts.

As indicated in Table C, it is clear that all of the direct negative impacts were rated with a **Low to Very Low** post-mitigation impact significance for the construction phase. In terms of the operational phase, the majority of the direct negative impacts were rated with a **Low to Very Low** post mitigation impact significance, with only the Visual

impacts being rated as **Moderate**. All of the direct negative impacts were rated with a **Low to Very Low** post-mitigation impact significance for the decommissioning phase.

Based on Table D, the majority of the cumulative negative impacts were rated with a **Low to Very Low** post mitigation impact significance for the construction phase, with only the Heritage impacts (Archaeology and Cultural Landscape) and Palaeontology impacts being rated as **Moderate**. A similar trend is applicable to the operational phase, with Heritage impacts (Archaeology and Cultural Landscape) and Visual impacts being rated as **Moderate**. During the decommissioning phase, the majority of cumulative impacts were rated with a **Low to Very Low** post mitigation impact significance, with only the Heritage impacts (Archaeology and Cultural Landscape) being rated as **Moderate**.

Table C. Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative Impacts for the Kwagga EGI Projects

Specialist Assessment	Construction Phase	Operational Phase	Decommissioning Phase
DIRECT NEGATIVE IMPACTS			
Visual	Low	Moderate	Very Low
Heritage (Archaeology and Cultural Landscape)	Very Low	Very Low	Very Low
Palaeontology	Low	Insignificant	Insignificant
Terrestrial Biodiversity and Species	Low	Very Low	Very Low
Aquatic Biodiversity	Very Low	Very Low	Very Low
Avifauna	Low	Low	Low

Table D. Overall Impact Significance with the Implementation of Mitigation Measures for Cumulative Negative Impacts for the Kwagga EGI Projects

Specialist Assessment	Construction Phase	Operational Phase	Decommissioning Phase
CUMULATIVE NEGATIVE IMPACTS			
Visual	Low	Moderate	Very Low
Heritage (Archaeology and Cultural Landscape)	Moderate	Moderate	Moderate
Palaeontology	Moderate	Insignificant	Insignificant
Terrestrial Biodiversity and Species	Low	Low	Low
Aquatic Biodiversity	Very Low	Very Low	Very Low
Avifauna	Low	Low	Low

All of the specialists have recommended that the proposed project receives EA if the recommended mitigation measures are implemented. Note that copies of the confirmation letters received from the relevant specialists (included in Appendix H of this Final BA Report) confirming that the re-alignment in the proposed powerline routing as discussed in this BA Report will not have any material impact on their respective assessment findings and evaluation of the EGI assessment corridor, and it will not change their assessment outcomes of the potential impacts on the receiving environment, as the revised powerline route remains within the powerline corridor previously assessed during the BA Processes as contained in the respective Specialist Impact Assessment Reports dated July 2022 (included as Appendix D of this Final BA Report). Also, note that all conclusions and recommendations made in the respective Specialist Impact Assessment Reports remain valid and have been incorporated into the project specific EMP for adherence.

OVERALL ENVIRONMENTAL IMPACT STATEMENT

Taking into consideration the findings of this BA process, as well as the location of the proposed powerline project (i.e., 132 kV Overhead Powerline Section 2 of the Kwagga EGI corridor) in close proximity to the Beaufort West REDZ, it is the opinion of the EAP, that the project benefits outweigh the costs and that the project will make a positive contribution to sustainable infrastructure development in the Gamka Karoo, and Beaufort West and Prince Albert regions. Provided that the specified mitigation measures are applied effectively, it is recommended that the proposed powerline project receive EA in terms of the 2014 EIA Regulations (as amended) promulgated under the NEMA.

CUMULATIVE ENVIRONMENTAL IMPACT STATEMENT

The cumulative impacts have been assessed by all the specialists on the project team. The cumulative assessment included approved renewable energy projects within a 50 km radius of the powerline corridor, as well as existing and planned transmission lines, as well as the three proposed authorised Kwagga WEF 1-3 projects. No cumulative impacts have been identified that were considered to be fatal flaws. The specialists recommended that the powerline project receive EA in terms of the EIA Regulations promulgated under the NEMA, including consideration of cumulative impacts. It is also important to note that the proposed powerline corridor is located in close proximity to the gazetted Beaufort West REDZ, which supports the development of large-scale wind and solar energy developments. The proposed powerline corridor is also located in close proximity to the gazetted Central Strategic Transmission Corridor, as well as the existing Droërivier-Proteus 400 kV Overhead Transmission Powerline. The proposed powerline project is therefore in line with the national planning vision for wind and solar development, as well as electricity transmission and distribution expansion in South Africa.

Summary of where requirements of Appendix 1 of the 2014 NEMA EIA Regulations (as amended, GN R326) are provided in this BA Report

<u>Appendix 1</u>	<u>YES / NO</u>	<u>SECTION IN BA REPORT</u>
<p>Objective of the basic assessment process</p> <p>2) The objective of the basic assessment process is to, through a consultative process-</p> <p>a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;</p> <p>b) identify the alternatives considered, including the activity, location, and technology alternatives;</p> <p>c) describe the need and desirability of the proposed alternatives;</p> <p>d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine-</p> <p>(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and</p> <p>(ii) the degree to which these impacts-</p> <p>(aa) can be reversed;</p> <p>(bb) may cause irreplaceable loss of resources; and</p> <p>(cc) can be avoided, managed or mitigated; and</p> <p>e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to-</p> <p>(i) identify and motivate a preferred site, activity and technology alternative;</p> <p>(ii) identify suitable measures to avoid, manage or mitigate identified impacts; and</p> <p>(iii) identify residual risks that need to be managed and monitored.</p>	Yes	<p>Section A of the report includes the Introduction, legislative review, alternatives assessment and needs and desirability</p> <p>Section D of the report includes a summary of the specialist studies and associated impact assessments undertaken</p>
<p>Scope of assessment and content of basic assessment reports</p> <p>3) (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include:</p> <p>(a) details of:</p> <p>(i) the EAP who prepared the report; and</p> <p>(ii) the expertise of the EAP, including a curriculum vitae;</p>	Yes	Section A.4 and Appendix A
<p>(b) the location of the activity, including:</p> <p>(i) the 21-digit Surveyor General code of each cadastral land parcel;</p> <p>(ii) where available, the physical address and farm name;</p> <p>(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;</p>	Yes	Section A.1, Section A.6, Section A.7 and Section B.1
<p>(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is-</p> <p>(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or</p> <p>(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;</p>	Yes	Section A.1, Section A.6 and Appendix C
<p>(d) a description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the activities to be undertaken including associated structures and infrastructure;</p>	Yes	Section A.5, Section A.7 and Section A.11
<p>(e) a description of the policy and legislative context within which the development is proposed including-</p>	Yes	Section A.10

Appendix 1	YES / NO	SECTION IN BA REPORT
(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;		
f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Yes	Section A.5 and Section A.14
(g) a motivation for the preferred site, activity and technology alternative;	Yes	Section A.13
(h) A full description of the process followed to reach the proposed preferred alternative within the site, including - (i) details of all the alternatives considered;	Yes	Section A.13
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Yes	Section C and Appendix E
(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;	Yes	Section C
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Yes	Section A.13 and Section B
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the 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;	Yes	Section A.13 and Section D
(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Yes	
(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;	Yes	
(viii) the possible mitigation measures that could be applied and level of residual risk;	Yes	
(ix) the outcome of the site selection matrix;	Yes	
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Yes	
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.	Yes	Section A.13
(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Yes	Section A.13
(j) an assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed;	Yes	Section D and Appendix C

Appendix 1	YES / NO	SECTION IN BA REPORT
(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;		
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Yes	Section D and Section E
(l) an environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Yes	Section E
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPR;	Yes	Section D and Appendix G
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Yes	Section E
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Yes	Please refer to each specialist study included in Appendix D
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Yes	Section E
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	X	N/A
(r) an undertaking under oath or affirmation by the EAP in relation to - (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) 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; and	Yes	Appendix A
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	X	N/A
(t) any specific information that may be required by the competent authority; and	X	N/A
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	X	N/A
2) Where a government notice <i>gazetted</i> by the Minister provides for the basic assessment process to be followed, the requirements as indicated in such a notice will apply.	Yes	Refer to Section A.10 for a breakdown of the relevant gazettes that are applicable.