

# FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Scoping and Environmental Impact Assessment for the Proposed Development of an independent 400/132kV Main Transmission Substation (MTS) and a 400 kV Loop-In-Loop-Out (LILO) from the MTS to an existing Eskom power line, as well as associated infrastructure; near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State.



September 2024

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



Prepared for:  
Scatec Africa (Pty) Ltd and  
Veroniva (Pty) Ltd

**Scatec**

veroniva  
Renewable Energy Development



# PART A: MAIN REPORT



## SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT

for the

**Proposed Development of an independent 400/132kV Main Transmission Substation (MTS) and a 400 kV Loop-In-Loop-Out (LILo) from the MTS to an existing Eskom power line, as well as associated infrastructure; near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State**

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September 2024

***Prepared for:***

Scatec Africa (Pty) Ltd and Veroniva (Pty) Ltd

***Prepared by:***

Council for Scientific and Industrial Research (CSIR)

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

Postnet Suite 367, Private Bag x10, Musgrave Road,  
4062; Tel: 031 242 2300

***Lead Authors:***

Paul Lochner, Rohaida Abed, Suvasha Ramcharan, and Helen Antonopoulos (CSIR)

***Specialists:***

Johann Lanz; Corné Niemandt; Russell Tate; Samuel Laurence; Quinton Lawson; Bernard Oberholzer; Dr Jayson Orton; Dr John Almond; Dale Barrow; Hardy Luttig; Louis Jonk; and Julian Conrad

***Mapping:***

Luanita Snyman-Van der Walt (CSIR)

***Formatting and Desktop Publishing:***

Magdel van der Merwe (DTP Solutions)

# Report Details

<b>Title:</b>	Scoping and Environmental Impact Assessment for the Proposed Development of an independent 400/132kV Main Transmission Substation (MTS) and a 400 kV Loop-In-Loop-Out (LIL) from the MTS to an existing Eskom power line, as well as associated infrastructure; near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State: FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT.	
<b>Purpose of this report:</b>	<p>The purpose of this Final EIA Report is to:</p> <ul style="list-style-type: none"> <li>▪ Present the details of and the need for the proposed projects;</li> <li>▪ Describe the affected environment at a sufficient level of detail to facilitate informed decision-making;</li> <li>▪ Provide an overview of the EIA Process that has been followed, including public consultation;</li> <li>▪ Provide an overview of the potential positive and negative impacts of the proposed projects on the environment;</li> <li>▪ Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the proposed projects; and</li> <li>▪ Provide an Environmental Management Programme (EMPr) for the relevant phases of the projects.</li> </ul> <p>The Draft EIA Report was released to all Interested and/or Affected Parties (I&amp;APs), Organs of State and relevant stakeholders for a 30-day review period, which extended from <b>2 August 2024 to 2 September 2024</b>, excluding public holidays. All comments submitted during the 30-day review period have been incorporated and responded to in the Comments and Responses Report included as Appendix I.7 of this Final EIA Report, and addressed, as applicable and where relevant, in this Final EIA Report. This Final EIA Report has been submitted to the National Department of Forestry, Fisheries and the Environment (DFFE) for decision-making.</p>	
<b>Prepared for:</b>	Scatec Africa (Pty) Ltd and Veroniva (Pty) Ltd	
<b>Prepared by:</b>	CSIR:	
<b>Lead Authors:</b>	P. O. Box 320, Stellenbosch, 7599	Postnet Suite 367, Private Bag x10, Musgrave Road, 4062
<b>Mapping:</b>	Tel: 021 888 2400	Tel: 031 242 2300
<b>Specialists:</b>	Email: <a href="mailto:ems@csir.co.za">ems@csir.co.za</a>	Email: <a href="mailto:ems@csir.co.za">ems@csir.co.za</a>
<b>Formatting and Desktop Publishing:</b>	Paul Lochner, Rohaida Abed, Suvasha Ramcharan and Helen Antonopoulos (CSIR)	
<b>Date:</b>	Luanita Snyman-Van der Walt (CSIR)	
<b>DFFE Reference No:</b>	Johann Lanz; Corné Niemandt; Russell Tate; Samuel Laurence; Quinton Lawson; Bernard Oberholzer; Dr Jayson Orton; Dr John Almond; Sue Reuther; Annebet Krige; Dale Barrow; Hardy Luttig; Louis Jonk; Julian Conrad; and Debbie Mitchell	
<b>To be cited as:</b>	Magdel van der Merwe, DTP Solutions	
	September 2024	
	<ul style="list-style-type: none"> <li>▪ Biesjesvlei MTS and LILO: 14/12/16/3/3/2/2535</li> </ul>	
	CSIR, 2024. Scoping and Environmental Impact Assessment for the Proposed Development of an independent 400/132kV Main Transmission Substation (MTS) and a 400 kV Loop-In-Loop-Out (LIL) from the MTS to an existing Eskom power line, as well as associated infrastructure; near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State. <a href="#">Final Environmental Impact Assessment Report</a> . CSIR Report Number: CSIR/SPLA/SECO/ER/2024/0005/B	

# Contents

## PART A: MAIN REPORT

### Executive Summary

<b>Chapter 1</b>	Introduction
<b>Chapter 2</b>	Project Description
<b>Chapter 3</b>	Description of the Affected Environment
<b>Chapter 4</b>	Approach to EIA Process and Public Participation
<b>Chapter 5</b>	Alternatives
<b>Chapter 6</b>	Agriculture
<b>Chapter 7</b>	Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species
<b>Chapter 8</b>	Aquatic Biodiversity and Species
<b>Chapter 9</b>	Avifauna
<b>Chapter 10</b>	Visual
<b>Chapter 11</b>	Heritage (Archaeology and Cultural Heritage)
<b>Chapter 12</b>	Palaeontology
<b>Chapter 13</b>	Geotechnical
<b>Chapter 14</b>	Civil Aviation
<b>Chapter 15</b>	Conclusions and Recommendations

## **PART B: APPENDICES**

<b>Appendix A</b>	Curriculum Vitae of the Environmental Assessment Practitioners
<b>Appendix B</b>	Declaration of Independence of the Environmental Assessment Practitioner
<b>Appendix C</b>	Pre-Consultation with the Competent Authority
<b>Appendix D</b>	Maps
<b>Appendix E</b>	Specialist Studies and Inputs
<b>Appendix F</b>	Database of Interested and/or Affected Parties
<b>Appendix G</b>	Public Participation for the Scoping Phase
<b>Appendix H</b>	DFFE Acceptance of the Final Scoping Report
<b>Appendix I</b>	Public Participation for the EIA Phase
<b>Appendix J</b>	Generic Environmental Management Programme for the 400/132kV Main Transmission Substation (MTS)
<b>Appendix K</b>	Generic Environmental Management Programme for the 400 kV Loop-In-Loop-Out (LILO)
<b>Appendix L</b>	Additional Information



**Key Changes made from the DRAFT EIA Report that was issued for I&AP, Stakeholder and Organ of State Review from 02 August 2024 to 02 September 2024**

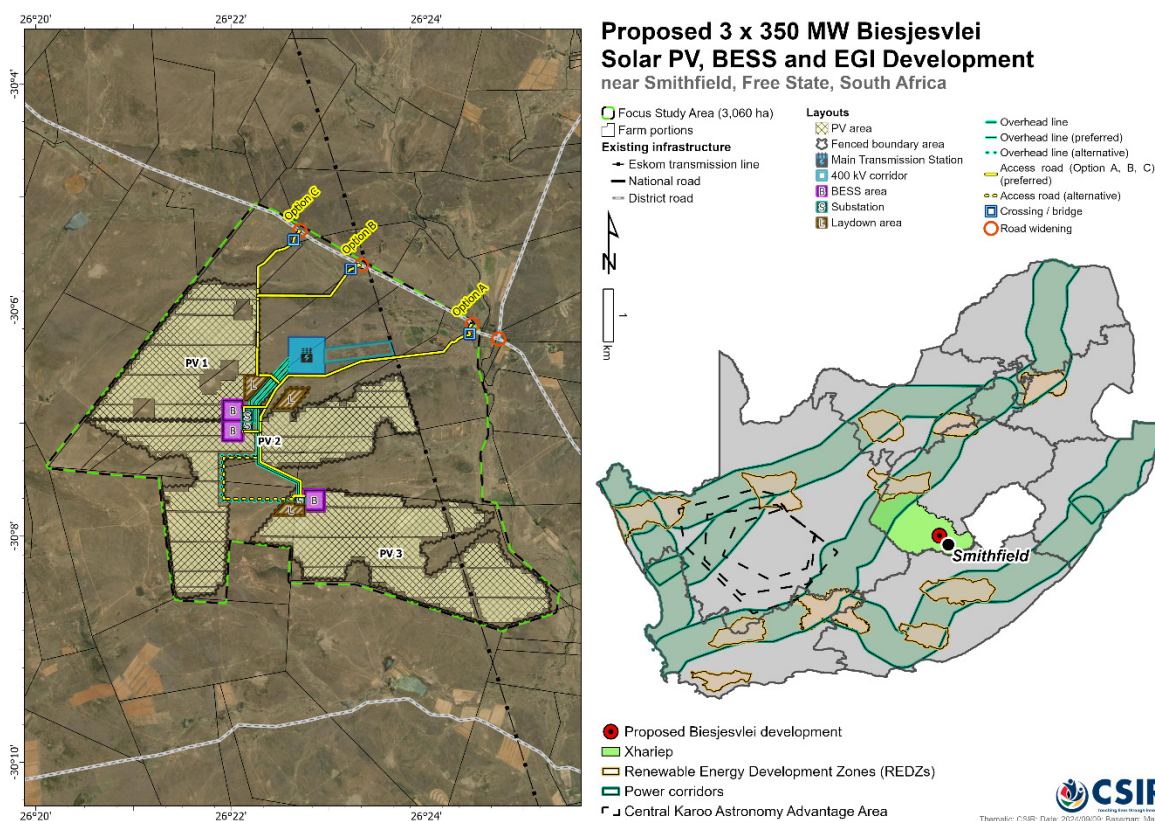
Key change description	Summary	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	A	B	C	D	E	F	G	H	I	J	K	L
The term "Draft EIA Report" has been updated to "Final EIA Report", where applicable.	✓	✓	✓	✓	✓	✓										✓									✓	✓	✓	
Change from general term of "lattice structures" to the more specific Guyed-V towers, Strain towers or Cross-rope suspension towers for the Biesjesvlei MTS and LILO project. Update for servitude width from 40 m to 55 m for the proposed LILO.	✓		✓		✓																							
The above required submission of an Amended Application for EA with the Final EIA Report. Note that this is not a significant change and is not significant new information (additional information is provided in Chapter 2 of the Final EIA Report).			✓		✓																							
Updated with additional information regarding the status and progress made on the EIA Process, the submission of the Amended Application for EA to the DFFE during the Draft EIA Report stage, as well as DFFE's acknowledgment of receipt (Appendix I.5).	✓	✓	✓		✓																				✓			
Updated with details of the Public Participation Process undertaken, including status of comments received from key stakeholders. Added proof of placement of the newspaper advertisements (Appendix I.3), correspondence and proof of correspondence sent to stakeholders for the Draft EIA Report release (Appendix I.4); comments received from stakeholders during the 30-day review of the Draft EIA Report (Appendix I.6); and Comments and Responses Trail (Appendix I.7).	✓	✓	✓	✓	✓	✓				✓						✓									✓			
Summary feedback on the comments raised during the 30-day review period on the Draft EIA Report (Chapter 4), and specifically Avifauna Assessment (Appendix E.4).					✓																✓							
Updated the database of I&APs, Stakeholders and Organs of State to reflect additions and updates to the database.																						✓						
Updated the Chapter 9, Chapter 15, EMPs and Appendix E.4 (Avifauna Assessment) with recommendations provided by Stakeholders during the 30-day comment period (i.e. VulPro), where relevant.										✓						✓					✓						✓	
Confirmation and clarity regarding the layouts provided (i.e. that they are the final layout maps, and the layouts are based on specialist recommendations).			✓	✓												✓												
Updated sensitivity maps, feature maps and combined project specific layout and sensitivity maps to improve visualisation (i.e. removal of aerial background imagery and use of distinct colours), and clarity that the mapped sensitivities are inclusive of the features and buffers.				✓												✓				✓								
Updated feature map to clarify buffers recommended by the specialists. New feature map provided to include layouts for Projects 1 to 10, features and buffers.				✓																✓								
Project Coordinates also added to Appendix D																				✓								
Feedback on the temporary Cape Vulture power line roost on the existing Eskom 400 kV Beta Delphi line (as per VulPro comments during the process) including the recommended 100 m buffer on CSIR sensitivity maps				✓																✓								
Additional summary line on the cumulative impact statement																✓												
Higher resolution maps included in the Visual Impact Assessment (Appendix E.5) and Appendix D (where relevant)																				✓	✓							
Palaeontology SSV (Appendix E.7) layout maps corrected to reflect updated area for PV1 as assessed during the Draft EIA Report Stage (i.e. same layouts used for Final EIA Report Stage)																					✓							

**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.

# Executive Summary

## INTRODUCTION AND PROJECT LOCALITY

Scatec Africa (Pty) Ltd (the project owner) with support from Veroniva (Pty) Ltd, are proposing to develop three Solar Photovoltaic (PV) and Battery Energy Storage System (BESS) Facilities, and associated Electricity Grid Infrastructure (EGI), near Smithfield within the Mohokare Local Municipality, Xhariep District Municipality, Free State (Figure A). The project is referred to as the “Biesjesvlei” Solar PV, BESS and EGI development.



**Figure A. Locality map for the proposed Biesjesvlei Solar PV1 to PV3; Biesjesvlei BESS 1 to 3; Biesjesvlei EGI 1 to 3; and Biesjesvlei MTS and LILO, near Smithfield in the Free State.**

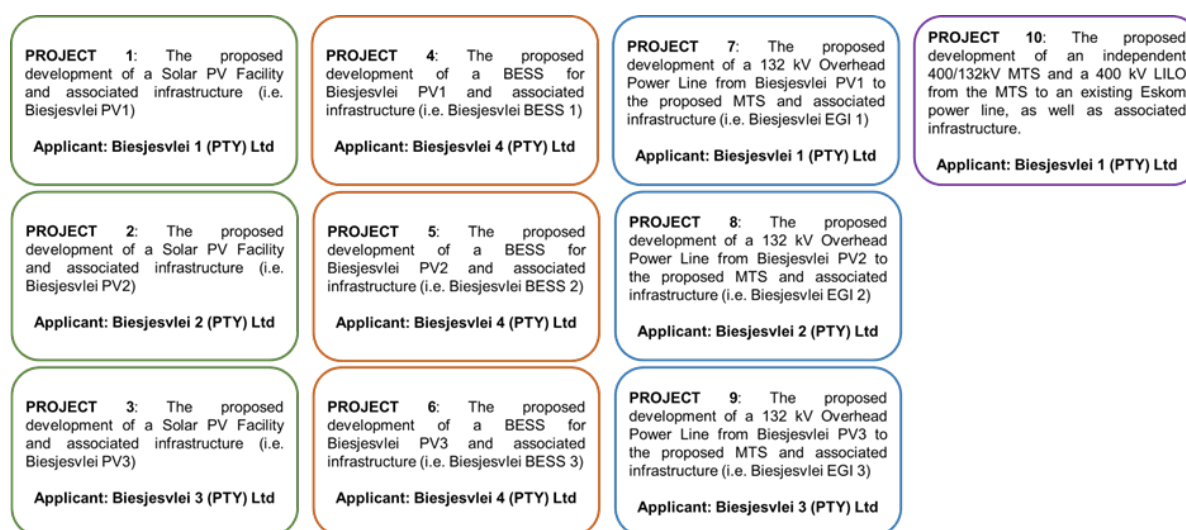
The proposed projects are not located within any of the Renewable Energy Development Zones (REDZs) that were gazetted in GN 114 on 16 February 2018; and GN 144 on 26 February 2021. The proposed projects are also not located within any of the Strategic Transmission Corridors that were gazetted in GN 113 on 16 February 2018; and GN 1637 on 24 December 2021.



The proposed projects will make use of PV solar technology to generate electricity from energy derived from the sun. Each solar PV facility will have a range of associated infrastructure and is proposed to connect to an existing 400 kV power line via dedicated 132 kV power lines, a proposed independent Main Transmission Substation (MTS) and a Loop-In-Loop-Out (LILO).

Each of the Solar PV Facilities would be its own project and would require its own, separate Environmental Authorisation (EA). The same applies to the BESS and EGI projects. Each project will have a specific Project Applicant. The following projects are being proposed (Figure B):

- **PROJECTS 1 TO 3:** The proposed development of three Solar PV Facilities and associated infrastructure (i.e. Biesjesvlei PV1 to Biesjesvlei PV3).
- **PROJECTS 4 TO 6:** The proposed development of three BESS and associated infrastructure (i.e. Biesjesvlei BESS 1 to Biesjesvlei BESS 3).
- **PROJECTS 7 to 9:** The proposed development of a 132 kV Overhead Power Line from each Biesjesvlei PV Facility to the proposed MTS, and associated infrastructure (i.e. Biesjesvlei EGI 1 to Biesjesvlei EGI 3).
- **PROJECT 10:** The proposed development of an independent 400/132kV MTS and a 400 kV LILLO from the MTS to the existing Eskom power line, as well as associated infrastructure (i.e. Biesjesvlei MTS and LILLO).



**Figure B: Breakdown of the projects that comprise the Biesjesvlei Solar PV, BESS, EGI, MTS and LILLO Development.**

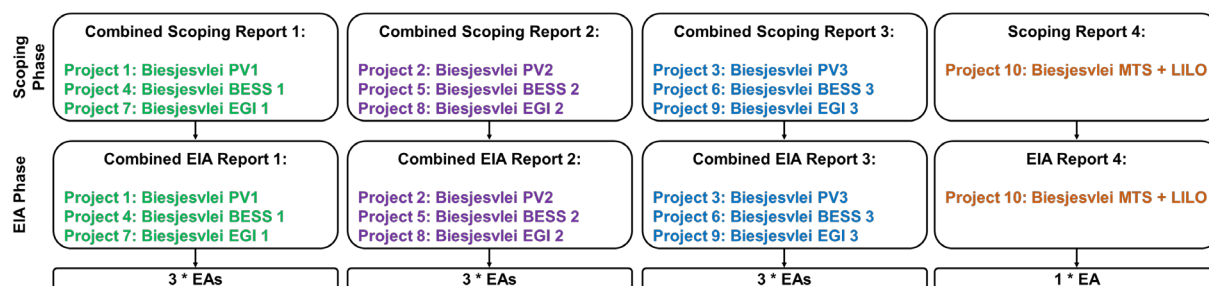
## **REPORT COMBINATION**

A request to combine the Environmental Assessment reporting, for Projects 1 to 9, in terms of Regulation 11 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended), and the issuing of multiple EAs in terms of Regulations 25 (1) and (2) was discussed with the National Department of Forestry, Fisheries and the Environment (DFFE) at the Pre-Application Meeting on 6 October 2023. A letter was submitted to the DFFE to request for the combination and issuing of multiple EAs in October 2023. The DFFE approved the request for combination and multiple EAs (should they be granted) in a letter dated 1 November 2023, sent via email on 6 November 2023.

The report for Project 10 (Biesjesvlei MTS and LILO) [i.e. this report] is not included in the combined reporting because only one EA is required for this project. Hence, one standalone report has been compiled for Project 10 [i.e. this report].

The reporting structure indicated in Figure C has been used.

In summary, separate combined reports have been compiled for each PV Facility, BESS and EGI cluster (i.e. Projects 1 to 9) and a separate EIA Report has been compiled for the MTS and LILO (i.e. Project 10) [i.e. this report]. Overall, four EIA Reports have been compiled for the proposed development, and it is proposed that 10 separate EAs will be issued (should they be granted).



**Figure C: Environmental Assessment Reporting Structure for the Biesjesvlei Solar PV, BESS, EGI, MTS and LILO Development.**

## COMPETENT AUTHORITY AND APPLICANTS

The Competent Authority for the proposed project is the National DFFE as an agreement has been reached in terms of Section 24C(3)(b) of NEMA between the Free State Department of Small Business Development, Tourism and Environmental Affairs (DESTEA) and DFFE to confirm that the proposed project can be decided upon by the DFFE. A copy of this agreement is included in Appendix C.8 of the EIA Report.

The Project Applicant for the proposed project is Biesjesvlei 1 (Pty) Ltd.

## NEED FOR THE EIA AND APPROACH

The proposed project triggers the need for an EA in terms of the 2014 NEMA EIA Regulations (as amended) published in GN R326, R327, R325 and R324 and further amended on 11 June 2021 in GN 517; and on 3 March 2022 in GN 1816. Chapter 4 of the EIA Report contains a detailed list of activities, which are triggered by the project and the various project components and thus forms part of this Scoping and EIA Process. Listed below is the key listed activity triggered for the project (Table A).

**Table A. Key Listed Activity**

<b>Project</b>	<b>Listing Notice, Listed Activity and Description</b>
<p><b>Project 10:</b> Biesjesvlei MTS and LILO and associated infrastructure</p>	<p><b>GN R325 (Listing Notice 2), Activity 9:</b> The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.</p>

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

**PUBLIC PARTICIPATION PROCESS AND CURRENT EIA STAGE (I.E. FINAL EIA REPORT)**

The Public Participation Process (PPP) for this Scoping and EIA Process has been undertaken in compliance with Chapter 6 of the 2014 NEMA EIA Regulations (as amended). An integrated PPP was undertaken for the proposed projects. The Draft Scoping Reports were made available to all Interested and/or Affected Parties (I&APs), Organs of State and relevant stakeholders for a 30-day comment period in March 2024, and the Final Scoping Reports were submitted to the DFFE in April 2024, and thereafter accepted in May 2024.

The Draft EIA Reports were made available to all I&APs, Organs of State and relevant stakeholders for a 30-day review period, which extended from 2 August 2024 to 2 September 2024. The Draft EIA Reports were uploaded to the project website (i.e., <https://www.csir.co.za/environmental-impact-assessment>) and Google Drive for potential and registered I&APs to access it. Written notification of the commencement of the EIA Phase and the availability of the Draft EIA Reports for comment was sent to all stakeholders included on the project database via email, where email addresses were available. This notification was sent at the commencement of the 30-day review period on the Draft EIA Reports and included information on the proposed projects and notification of the availability of the reports. Various reminder emails were also sent to the stakeholders. Refer to Appendix I.4 of this Final EIA Report for correspondence sent to stakeholders for the release of the Draft EIA Reports and follow up/reminders. Copies of all written comments received during the 30-day review period on the Draft EIA Report have been included in Appendix I.6 of this Final EIA Report. These comments have also been incorporated and responded to into a detailed Comments and Responses Report, included in Appendix I.7 of this Final EIA Report, and addressed, as applicable and where relevant, in the Final EIA Report. The Final EIA Report (i.e., this report) has been submitted to the DFFE, in accordance with Regulation 23 of the 2014 NEMA EIA Regulations (as amended), for decision-making.



## **PROJECT EIA TEAM**

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

**Table B. Project Team for the Scoping and EIA Process**

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN
<i>Environmental Management Services (CSIR)</i>		
Paul Lochner ( <i>Registered EAP (2019/745)</i> )	CSIR	EAP, Technical Advisor and Quality Assurance
Rohaida Abed ( <i>Pr.Sci.Nat.; Registered EAP (2021/4067)</i> )	CSIR	EAP and Project Manager
Helen Antonopoulos ( <i>Cand.Sci.Nat.</i> )	CSIR	Project Officer
Suvasha Ramcharan ( <i>Cand.Sci.Nat.</i> )	CSIR	Project Officer
Phindile Mthembu	CSIR	Project Officer
Luanita Snyman van der Walt ( <i>Pr.Sci.Nat.</i> )	CSIR	GIS Specialist
Lizande Kellerman ( <i>Pr.Sci.Nat.</i> )	CSIR	Public Participation Specialist
<i>Specialists</i>		
Johann Lanz ( <i>Pr.Sci.Nat.</i> )	Private	Agriculture and Soils Compliance Statement
Corné Niemandt ( <i>Pr.Sci.Nat.</i> ) Samuel Laurence ( <i>Pr.Sci.Nat.</i> )	Enviro-Insight cc	Terrestrial Biodiversity Assessment, Terrestrial Plant Species Compliance Statement, and Terrestrial Animal Species Compliance Statement
Russell Tate ( <i>Pr.Sci.Nat.</i> )	Tate Environmental Specialist Services (sub-contracted by Enviro-Insight)	Aquatic Biodiversity and Species Assessment
Samuel Laurence ( <i>Pr.Sci.Nat.</i> )	Enviro-Insight cc	Avifauna Impact Assessment
Quinton Lawson ( <i>SACAP, 3686</i> ) Bernard Oberholzer ( <i>SACLAP, 87018</i> )	QARC and BOLA	Visual Impact Assessment
Dr Jayson Orton ( <i>APHP: Member 43; ASAPA CRM Section: Member 233</i> )	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology and Cultural Landscape)
Dr John Almond ( <i>PSSA and APHP Member</i> )	Natura Viva cc	Palaeontology
Dale Barrow ( <i>Pr.Sci.Nat.</i> ) Hardy Luttig Louis Jonk ( <i>Pr.Sci.Nat.</i> ) Julian Conrad	GEOSS South Africa (PTY) Ltd	Geotechnical Letter of Professional Opinion
Rohaida Abed ( <i>Pr.Sci.Nat.; Registered EAP (2021/4067)</i> ) Lizande Kellerman ( <i>Pr.Sci.Nat.</i> ) Willan Adonis <sup>1</sup>	CSIR	Civil Aviation Site Sensitivity Verification

The specialist assessments comply with Appendix 6 of the 2014 NEMA EIA Regulations (as amended), or the Assessment Protocols published in GN 320 on March 2020; or the Assessment Protocols published in GN 1150 on October 2020. However, the Geotechnical Letter of Opinion serves as a technical report and the aforementioned legislation will thus not be applicable.

<sup>1</sup> This staff member resigned from the CSIR at the end of December 2023.

## **STUDY AREA**

The study area or preferred site for all the proposed Biesjesvlei Solar PV Facilities, BESS, 132 kV power lines, MTS and LILO and associated infrastructure (i.e., Projects 1 to 10) covers approximately 3 060 hectares (ha). These farm properties are listed in Table C.

**Table C. Farm portions and SG codes for the Study Area**

<b>FARM PORTION</b>	<b>SG CODE</b>
Farm Benoni 534	F03100000000053400000
Remaining Extent of Farm Biesjespoort 521	F03100000000052100000
Farm Biesjesvlei 372	F03100000000037200000
Farm Klein Badfontein 369	F03100000000036900000
Farm Modderkuil 396	F03100000000039600000
Farm Paalland 373	F03100000000037300000
Remaining Extent of Farm Pompoenfontein 118	F03100000000011800000
Portion 1 of Farm Pompoenfontein 118	F03100000000011800001
Farm Ronde Bult 408	F03100000000040800000
Farm Salpetervlei 756	F03100000000075600000
Portion 1 of Farm Schoemanskraal 34	F0310000000003400001

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

## **PROJECT DESCRIPTION**

A summary of the key components of the proposed Biesjesvlei MTS and LILO (Project 10) and technical information is described in Table D below.

**Table D. Summary of the components and associated infrastructure for Biesjesvlei MTS and LILO (Project 10)**

<b>Component</b>	<b>Description</b>
Independent Main Transmission Substation (MTS)	<ul style="list-style-type: none"> <li>▪ Footprint: Approximately 36 ha</li> <li>▪ Height: 15 m</li> <li>▪ Capacity: 400/132 kV</li> <li>▪ Associated infrastructure includes busbars, feeder bays, transformers and transformer bays. There will be located within the 36 ha footprint.</li> </ul>

Component	Description
Building Infrastructure	<ul style="list-style-type: none"> <li>▪ Operational and Maintenance (O&amp;M) Building and Offices (approximately 500 m<sup>2</sup> in area, and 7 m in height).</li> </ul>
Fencing around the MTS Perimeter	<ul style="list-style-type: none"> <li>▪ <u>Type</u>: Palisade or mesh or fully electrified</li> <li>▪ <u>Security</u>: Access points will be managed and monitored by an appointed security service provider.</li> <li>▪ <u>Height</u>: Between 2 - 3 m</li> </ul>
Internal Roads within the MTS	<ul style="list-style-type: none"> <li>▪ <u>Details</u>: New internal gravel roads will need to be established within the fenced off area of the MTS.</li> <li>▪ <u>Width</u>: Approximately 4 m</li> </ul>
400 kV Loop-In-Loop-Out (LILO)	<ul style="list-style-type: none"> <li>▪ The LILO will be routed above ground from the existing Eskom Beta-Delphi 400 kV Overhead Power Line to the proposed MTS.</li> <li>▪ <u>Height</u>: Up to 37 m</li> <li>▪ <u>Length</u>: Approximately 1 km</li> <li>▪ <u>Servitude</u>: 55 m wide</li> <li>▪ <u>Pylon specifications</u>: <ul style="list-style-type: none"> <li>○ <u>Type</u>: Guyed-V towers, Strain towers or Cross-rope suspension towers.</li> <li>○ <u>Tower</u>: Self-supporting and Angle Strain.</li> <li>○ <u>Foundation</u>: The size of the footprint area for the base of the tower foundation will range to approximately 100 m<sup>2</sup>. The minimum working area required around a structure position is 20 m x 20 m.</li> <li>○ <u>Span Length</u>: 200 m – 375 m</li> </ul> </li> </ul>
Service Road for the LILO	<ul style="list-style-type: none"> <li>▪ <u>Details</u>: A new gravel service road will need to be established below the LILO.</li> <li>▪ <u>Width</u>: Approximately 4 m</li> </ul>
External Access Roads	<ul style="list-style-type: none"> <li>▪ Refer to the detail provided in Section 2.4.6 of Chapter 2 of this Final EIA Report. Note that the Biesjesvlei MTS and LILO project will be developed after the PV or BESS projects have commenced (should relevant approvals be granted), and as such will make use of access roads developed for the PV or BESS projects.</li> </ul>



Component	Description
Storm water channels	<ul style="list-style-type: none"> <li>▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.</li> </ul>
Work area during the construction phase (i.e. laydown area)	<ul style="list-style-type: none"> <li>▪ Footprint: Up to 13 ha</li> </ul>
Water Requirements	<ul style="list-style-type: none"> <li>▪ Approximately 8 000 m<sup>3</sup> to 12 000 m<sup>3</sup> of water is estimated to be required per year for the construction phase.</li> <li>▪ Approximately 10 000 m<sup>3</sup> to 16 000 m<sup>3</sup> of water is estimated to be required per year for the operational phase.</li> <li>▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase.</li> <li>▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.</li> </ul>
Construction Period	<ul style="list-style-type: none"> <li>▪ 12 – 24 months</li> </ul>
Operational Period	<ul style="list-style-type: none"> <li>▪ Once the commercial operation date is achieved, the proposed EGI will transmit electricity for a minimum period of 20 to 30 years.</li> </ul>

## **SUMMARY OF IMPACT ASSESSMENT FINDINGS AND RECOMMENDED MANAGEMENT ACTIONS**

Based on the detailed specialist assessments, various potential impacts have been identified. A summary of the **main impacts** identified is provided in Table E. Note that several mitigation measures have also been provided by the specialists, however only selected key measures are noted in the table below. The specialist assessments included in Appendix E of this EIA Report, and the summaries with Impact Assessment tables included in Chapters 6 to 13 of this EIA Report, contain all the detail. The recommended mitigation measures have also been included in the EMPs in Appendix J and Appendix K of this EIA Report

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

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
<p><b>Appendix E.1 – Agriculture Compliance Statement</b></p>	<p><b><u>Negative Direct Impact:</u></b></p> <p><b>Construction, Operation and Decommissioning Phases:</b></p> <ul style="list-style-type: none"> <li>Loss of agricultural potential by occupation of land. There is only ever a single agricultural impact of any development, and it is a net change to the future agricultural production potential of land. It occurs as a result of different mechanisms, some of which decrease production potential and some of which increase it. In most developments, including the proposed Biesjesvlei projects, the decrease in production potential is primarily caused by the exclusion of agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential, but these can be managed so as not to cause impact.</li> </ul>	<p>According to the Agricultural Compliance Statement, the most important and effective mitigation of agricultural impacts for any development is avoidance of viable, potential cropland. The proposed development has already applied this mitigation by deliberately locating the project infrastructure where it avoids all viable, potential cropland in the area.</p> <p>There is no additional mitigation measures required, over and above what has already been included in the Generic EMPr for the Development and Expansion for Overhead Electricity Transmission and Distribution Infrastructure and the Generic EMPr for Substation Infrastructure for the Transmission and Distribution of Electricity, as per Government Notice 435, published in Government Gazette 42323 (March, 2019).</p>
<p><b>Appendix E.2: Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species Assessment</b></p>	<p><b><u>Negative Direct Impacts:</u></b></p> <p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>Fragmentation and loss of habitat and sensitive features.</li> <li>Loss of protected species.</li> <li>Introduction and spread of alien invasive species.</li> <li>Increased erosion and soil compaction.</li> <li>Littering and General Pollution.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>Increase in alien invasive species.</li> <li>Loss of species composition and diversity.</li> <li>Littering and General Pollution.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>Alien invasive species management.</li> <li>Loss of habitat.</li> </ul> <p><b><u>Negative Cumulative Impacts:</u></b></p> <ul style="list-style-type: none"> <li><b>Construction Phase:</b> Fragmentation and loss of habitat and sensitive features.</li> <li><b>Construction Phase:</b> Loss of protected species.</li> </ul>	<p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>No development should take place within High and Very High sensitivity areas and / or buffer zones. The Watercourse habitat should be avoided as per the sensitivity map compiled for Terrestrial Biodiversity. In addition, refer to the Aquatic Biodiversity Assessment where the watercourse is delineated, mapped and suitable buffers recommended by the Aquatic Biodiversity specialist.</li> <li>No construction related activities, such as the site camp, storage of materials, temporary roads or ablation facilities may be located in the very high sensitivity areas including their buffers.</li> <li>Minimise impacts to surrounding natural areas by demarcating development footprint and clearly indicating no-go areas.</li> <li>There will be bulldozing for roads, MTS, and laydown area, therefore some transformation will occur for permanent infrastructure, but this is a small extent of the total development footprint.</li> <li>Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Free State Nature Conservation Ordinance (FSNCO) 8 of 1969).</li> <li>Alien invasive species establishment and spreading should be monitored on an ongoing basis to ensure that the disturbed areas do not become infested with such plants.</li> <li>Utilise existing access routes as far as possible.</li> <li>Confine the movement of vehicles to the access routes to and from the site and to the construction areas.</li> </ul>

Specialist Assessment undertaken	<u>Key Impacts Identified</u>	Recommended Mitigation Measures
	<ul style="list-style-type: none"> <li>• <b>Construction, Operational and Decommissioning Phases:</b> Increased alien invasive species.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rehabilitate new vehicle tracks and areas where the soil has been compacted as soon as possible.</li> <li>▪ Monitor the entire site for signs of erosion throughout the construction phase of the project.</li> <li>▪ Refer to mitigation measures relevant to development close to watercourses as recommended by the Aquatic Biodiversity Specialist.</li> <li>▪ General good practice management actions in terms of spills, refuelling and waste management. These have been included in the EMPr.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ The loss of species composition and diversity cannot be mitigated due to a permanent structure which will change microclimatic conditions for the life of the facility operation.</li> <li>▪ Implement appropriate rehabilitation measures to return the grassland to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction.</li> <li>▪ Follow an alien and invasive species control and monitoring plan in terms of NEMBA by implementing appropriate control methods.</li> <li>▪ General good practice management actions in terms of spills, refuelling and waste management. These have been included in the Environmental Management Programme.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ The loss of vegetation is unavoidable within the approved layout development footprint, but sensitive areas must be avoided when dismantling of infrastructure.</li> <li>▪ Implement appropriate rehabilitation measures to return the grassland to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction.</li> <li>▪ Alien invasive management as per the construction and operational phase.</li> </ul>
<p><b>Appendix E.3: Aquatic Biodiversity and Species</b></p>	<p><b><u>Negative Direct Impacts:</u></b></p> <p><b>Construction, Operational, Decommissioning Phases:</b></p> <ul style="list-style-type: none"> <li>▪ Habitat quality degradation.</li> <li>▪ Water quality degradation.</li> <li>▪ Aquatic habitat connectivity loss.</li> </ul>	<p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Avoidance must be implemented i.e. the very high and high sensitivity areas identified, delineated and mapped by the Aquatic Specialist must be avoided by main infrastructure.</li> <li>▪ Culverts and road crossings are recommended to be designed based on the stream simulation culvert design process (United States Department of Agriculture (USDA), 2008).</li> <li>▪ Culverts should allow for the free movement of aquatic biota including fish such as <i>Enteromius sp.</i></li> </ul>



Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	<p><b><u>Negative Cumulative Impacts:</u></b></p> <p><b>Construction, Operational, Decommissioning Phases:</b></p> <ul style="list-style-type: none"> <li>▪ Habitat quality degradation.</li> <li>▪ Water quality degradation.</li> <li>▪ Aquatic habitat connectivity loss.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The placement of instream crossing infrastructure must not result in downstream erosion or upstream impoundment.</li> <li>▪ The implementation of bank rehabilitation actions must take place.</li> <li>▪ Where culverts are required, it is recommended that these are spread across the wetland units and not directed through single culverts.</li> <li>▪ All contractors and staff are to have undergone an induction / training on the location of sensitive No-Go areas and basic environmental awareness.</li> <li>▪ Access routes into or adjacent to the wetlands must make use of existing road ways and crossings where possible.</li> <li>▪ Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided.</li> <li>▪ Storm-water generated from roadways and denuded areas must be captured and buffered, where flow velocities are to be significantly reduced before discharge into the environment.</li> <li>▪ Storm-water verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion.</li> <li>▪ An inspection of the drainage channels must be completed within 3 months following the end of activities and within a month after the first rainfall event which exceeds 50mm. Should excessive sediment be transported down the channels it is recommended that sediment screens are implemented.</li> <li>▪ Sediment screens must be inspected, maintained and cleared every month or after significant rainfall (&gt;150mm/24hrs).</li> <li>▪ General storm-water management practices should be included in the design phase and implemented during the construction phase of this project.</li> <li>▪ Watercourse monitoring should take place annually as part of the environmental management programme (EMPr).</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ The implementation of the buffer zones stipulated in the Aquatic Biodiversity and Species Assessment.</li> <li>▪ A clear storm-water management plan for hardened surfaces must be implemented.</li> <li>▪ The revegetation of disturbed non-active cleared areas must take place within the first growing season between September and March following completion of the activity.</li> <li>▪ The above must be audited within 3 months of completing the phase.</li> <li>▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression.</li> <li>▪ Monitoring of instream structures on an annual basis.</li> </ul>

Specialist Assessment undertaken	<u>Key Impacts Identified</u>	Recommended Mitigation Measures
		<p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ All contractors and staff are to have undergone an induction / training on the location of sensitive No-Go areas and basic environmental awareness.</li> <li>▪ Areas where decommissioning is to take place must be clearly demarcated. Any areas not demarcated must be avoided.</li> <li>▪ Storm-water generated from roadways must be captured and buffered, where flow velocities are to be significantly reduced before discharge into the environment.</li> <li>▪ Storm-water verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion.</li> <li>▪ Any materials excavated must not be deposited in the wetlands or areas where it is prone to being washed downstream or impeding natural flow.</li> <li>▪ Stockpiling or storage of materials and/or waste must be placed beyond the defined buffers in this Aquatic Biodiversity and Species Assessment for each respective activity.</li> </ul>
<p><b>Appendix E.4: Avifauna Assessment</b></p>	<p><b><u>Negative Direct Impacts:</u></b></p> <p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Disturbance of foraging and breeding behaviours of birds due to noise, dust and lighting.</li> <li>▪ Loss of habitat due to clearing, trenching, alteration and exclusion from previously accessible habitats.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Continued disturbance due to operational activities (use of vehicles, lights etc.).</li> <li>▪ Loss of habitat due to altered and excluded habitats and threat of fire.</li> <li>▪ Direct mortality from electrocution and collision with infrastructure (e.g. fences, overhead power lines).</li> <li>▪ Attraction to the facility exacerbating potential impacts.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Habitat loss reclamation from rehabilitation activities (<i>positive impact</i>).</li> <li>▪ Continued disturbance due to decommissioning activities (use of vehicles, lights etc.).</li> <li>▪ Removal of power lines to promote safe passage (lowering collision risk) through the site and avoiding attraction by birds perching and nesting (<i>positive impact</i>).</li> </ul> <p><b><u>Negative Cumulative Impacts:</u></b></p> <p><b>Construction and Operational Phases:</b></p>	<p><b>Note from the CSIR: Several mitigation measures have been identified in the assessment. The list below is only a summary of some of the recommendations.</b></p> <p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Intensive activities should be scheduled as far as practically possible between February-November (latest). Note that light activities such as normal vehicle use of the roads are not affected by this mitigation measure and these may proceed year-round.</li> <li>▪ Minimise light pollution and fit external lighting with downward facing hoods.</li> <li>▪ Enforce a speed limit of 40 km/h on site.</li> <li>▪ Limit the areas cleared for construction purposes (e.g. laydown areas).</li> <li>▪ Rehabilitate all areas disturbed immediately after construction.</li> <li>▪ Prioritise existing roads for access routes, where possible.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ For power lines, attempts should be made to minimise the route length to the closest existing substation and that the route should be aligned with existing power lines/roads as far as possible.</li> <li>▪ Additionally, the route should avoid wetland crossings or potentially be routed underground if this is not possible utilising strict wetland rehabilitation measures captured in the Avifauna Specialist Assessment.</li> <li>▪ In all new raised power line crossings developed for the Biesjesvlei projects, install bird flight diverters to enhance visibility of lines. Install Eskom-approved bird flight diverters (flappers or coils) on new above-ground transmission lines and on any new guide-wires</li> </ul>

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	<ul style="list-style-type: none"> <li>▪ Construction and Operational Phases: Habitat loss due to a regional saturation of renewable energy facilities.</li> <li>▪ Operational Phase: Increased collision mortality due to higher regional densities of power lines.</li> </ul>	<p>used to anchor infrastructure such as pylons, and/or new monopoles developed for the Biesjesvlei projects.</p> <ul style="list-style-type: none"> <li>▪ Design of new overhead electrical lines developed for the Biesjesvlei projects must take into account potential for electrocution by large species and pre-emptively avoid the likelihood of this by increasing distances between spans to avoid faecal “streamers” or large open wings creating a short.</li> <li>▪ Avoid siting lines in areas where birds concentrate.</li> <li>▪ Where possible, power lines of 132 kV or less should be buried underground. However, if mitigated as per the recommendations in the Avifauna Specialist Assessment, above ground lines are not considered a fatal flaw.</li> <li>▪ In order to reduce avian mortalities related to bird collisions or nests, perch guards should be installed on all new power line infrastructure developed for the Biesjesvlei projects (such as poles and platforms).</li> <li>▪ Light reflecting markers / bird flight diverters are a requirement to avoid collision by nocturnal species. Such markers / diverters need to be closely spaced (&lt;15 m) on new overhead power lines and must glow in the dark or reflect light to make the transmission lines more visible at night.</li> <li>▪ Landowner cooperation will be required in order to ensure no livestock persists within the fenced off area of the projects, or no carcasses should persist within the 3060 ha study area. This is required in terms of removal of attractants for Species of Conservation Concern (SCC) such as vultures.</li> <li>▪ Buffering of the overhead power line infrastructure (minimum 100 m) away from designated sensitive habitats is required in order to minimise collision risks. It has been recommended that a 100 m buffer be placed around the existing Eskom 400 kV pylon identified as containing the temporary Cape Vulture aggregations / temporary roost in terms of the placement of the LILO. The LILO has accordingly been placed outside of this buffer (as indicated on the relevant sensitivity maps included in Chapter 15 of this Final EIA Report (i.e. this chapter) and Appendix D of this Final EIA Report).</li> <li>▪ No water sources, such as concrete reservoirs or animal water troughs, should be located directly under any new proposed power line infrastructure for the Biesjesvlei projects. Any existing concrete reservoirs should either be covered or fitted with a mechanism to allow birds to escape if they become trapped in low-water scenarios.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Intensive activities should be scheduled as far as practically possible between February-November (latest). Note that light activities such as normal vehicle use of the roads are not affected by this mitigation measure and these may proceed year-round.</li> </ul>



Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		<ul style="list-style-type: none"> <li>▪ Minimise light pollution and fit external lighting with downward-facing hoods.</li> <li>▪ Enforce a speed limit of 40 km/h on site.</li> <li>▪ If necessary, apply dust-suppression measures (road wetting) to limit dust.</li> <li>▪ Remove all infrastructure (mainly pylons) not originally present prior to the construction phase.</li> <li>▪ Rehabilitate all areas disturbed immediately after decommissioning activities and removal of infrastructure.</li> </ul>
<p><b>Appendix E.5: Visual Impact Assessment</b></p>	<p><b><u>Negative Direct Impacts:</u></b></p> <p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Potential effect of dust and noise from trucks and construction machinery during the construction period, and the effect of this on nearby farmsteads and visitors to the area.</li> <li>▪ Potential visual effect of haul roads, access roads, stockpiles and construction camps in the visually exposed landscape.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Potential visual intrusion of the MTS and LILO, and related infrastructure on receptors.</li> <li>▪ Potential visual impact of an industrial type of activity on the pastoral / rural character and sense of place of the area.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Potential visual effect of any remaining structures, platforms and disused roads on the landscape.</li> </ul> <p><b><u>Negative Cumulative Impacts:</u></b></p> <p><b>Construction, Operational and Decommissioning Phases:</b></p> <ul style="list-style-type: none"> <li>▪ Potential combined visual effect of the proposed three Biesjesvlei Solar PV facilities, three Biesjesvlei BESS, three Biesjesvlei power lines and EGI, and Biesjesvlei MTS and LILO in the study area, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and the proposed fibre optic cable) seen together during the construction, operational and decommissioning phases. No known other existing and proposed renewable energy facilities occur in the general area. Others are so far away as to have no combined visual significance.</li> </ul>	<p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Locate construction camps and stockpiles in visually unobtrusive areas, away from public roads.</li> <li>▪ Implement EMP with ECO during construction.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ MTS to be located in an unobtrusive low-lying area, and LILO along unobtrusive corridors, away from public roads and farmsteads, where possible. The Salpetersvlei is owned/occupied by a landowner who is part of the project, hence this is not a concern from a visual perspective.</li> <li>▪ Muted natural colours and non-reflective finishes to be used for structures generally.</li> <li>▪ Internal access roads and service roads to be as narrow as possible, and existing roads or tracks used as far as possible.</li> <li>▪ Outdoor/ security lighting to be fitted with reflectors to obscure the light source, and to minimise light spillage.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ MTS and LILO facilities, and associated infrastructure to be removed and/or recycled.</li> <li>▪ Access roads no longer required to be ripped and regraded.</li> <li>▪ Exposed or disturbed areas to be revegetated to blend with the surroundings.</li> </ul>
<p><b>Appendix E.6: Heritage Impact Assessment</b></p>	<p><b><u>Negative Direct and Cumulative Impacts:</u></b></p> <p><b>Construction Phase:</b></p>	<p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Demarcate known heritage sites within 50 m of the project footprint as No-Go areas (none known at present).</li> </ul>

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
<b>(Archaeology and Cultural Landscape)</b>	<ul style="list-style-type: none"> <li>▪ Damage or destruction of archaeological materials.</li> <li>▪ Damage or destruction of graves.</li> <li>▪ Damage to built heritage resources.</li> <li>▪ Intrusion of MTS and LILO and equipment into the landscape.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Intrusion of MTS and LILO into the landscape.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Intrusion of MTS and LILO and equipment into the landscape.</li> </ul> <p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Impacts to archaeology, graves, buildings.</li> <li>▪ Intrusion of MTS and LILO and equipment into the landscape.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fence known graves with a wire farm fence and gate at least 5 m from all visible graves.</li> <li>▪ Demarcate known graves within 50 m of the project footprint as No-Go areas.</li> <li>▪ Report any chance finds to South African Heritage Resources Agency (SAHRA) and/or an archaeologist. In the case of graves, protect chance finds <i>in situ</i> and appoint an archaeologist to exhume under an approved permit.</li> <li>▪ Demarcate buildings as no-go areas.</li> <li>▪ Minimise the duration of the construction period.</li> <li>▪ Minimise cut-and-fill and landscape scarring in general.</li> <li>▪ Ensure effective rehabilitation of areas not needed during operation.</li> </ul> <p><b>Operational Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Paint buildings in earthy tones.</li> <li>▪ Ensure that all maintenance vehicles stay within the authorised footprint.</li> <li>▪ Make use of lighting mitigation measures such as motion sensors and downlighting.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Minimise duration of decommissioning period</li> <li>▪ Ensure effective rehabilitation of all affected areas.</li> </ul>
<b>Appendix E.7: Palaeontology Site Sensitivity Verification Report</b>	<ul style="list-style-type: none"> <li>▪ The study area has been confirmed as low to very low palaeo-sensitivity. Provided that the Chance Fossil Finds Protocol is incorporated into the EMPs and fully implemented during the construction phase, there are no objections on palaeontological heritage grounds to authorisation of the proposed projects. Pending the discovery of significant, previously unrecorded fossil sites during the construction phase (which can be handled using the Chance Fossil Finds Protocol), no further specialist palaeontological studies, reporting, monitoring or mitigation are considered necessary for the proposed projects. This approach was accepted and supported by the South African Heritage Resources Agency (SAHRA), as indicated in Appendix G.6 of this EIA Report. Furthermore, SAHRA issued final comments for the proposed project confirming that the SAHRA Development Applications Unit (DAU) has no objections to the proposed development.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Chance Fossil Finds Protocol has been incorporated into the project EMPs (Appendix J and Appendix K of this EIA Report).</li> </ul>
<b>Appendix E.8: Geotechnical Letter of Professional Opinion</b>	<p><b>Direct Negative Impacts:</b></p> <p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Displacement of geologic materials.</li> </ul> <p><b>Construction, Operational and Decommissioning Phases:</b></p> <ul style="list-style-type: none"> <li>▪ Contamination of subsoils and loss of topsoil.</li> </ul>	<p><b>Construction Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Development of a stormwater management plan by a qualified professional before construction is recommended.</li> <li>▪ Immediate rehabilitation post-construction, optimising the conditions for vegetation regrowth.</li> <li>▪ Implementation of safeguards during refuelling to protect soil from spillages, ensuring swift and proper disposal if incidents occur.</li> </ul> <p><b>Operational Phase:</b></p>

Specialist Assessment undertaken	<u>Key Impacts Identified</u>	Recommended Mitigation Measures
	<p><b>Operational and Decommissioning Phases:</b></p> <ul style="list-style-type: none"> <li>▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Similar to the construction phase, stormwater management planning by a qualified professional will be required.</li> <li>▪ Diversion of water away from road layers and erected structures, akin to the construction phase.</li> <li>▪ Replication of mitigation measures for spillages/leakages from the construction phase.</li> </ul> <p><b>Decommissioning Phase:</b></p> <ul style="list-style-type: none"> <li>▪ Restoration of natural topography and land rehabilitation to near-natural state, including removal of foundations and hard surfaces, followed by proper backfilling.</li> <li>▪ Use of locally sourced materials for reinstating and backfilling to ensure uniformity.</li> <li>▪ Implementation of standard environmental management procedures for infrastructure.</li> <li>▪ Stringent measures to prevent pollution and contamination of the riparian zone, including well-maintained equipment and safeguards during refuelling operations.</li> </ul>

## **SUMMARY OF THE KEY IMPACT ASSESSMENT FINDINGS**

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

- **Biesjesvlei MTS and LILO:** With the implementation of mitigation measures, this project is considered to have an **overall Low to Very Low negative environmental impact, with some moderate negative environmental impacts on Terrestrial Biodiversity and Species during construction and operations and on Avifauna during operations.** Refer to Table F.

**Table F. Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative and Positive Impacts for Biesjesvlei MTS and LILO**

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
<b>DIRECT NEGATIVE IMPACTS</b>						
Agriculture and Soils	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Moderate	Low	Moderate	Low	Low	
Aquatic Biodiversity	Low		Low		Low	
Avifauna	Low		Moderate	Low	Low	
Visual	Low		Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Low		Low		Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	
Geotechnical	Low	Very Low	Low	Very Low	Low	Very Low
<b>DIRECT POSITIVE IMPACTS</b>						
Avifauna	Not identified		Not identified		Moderate	High

Based on Table G, the majority of the cumulative negative impacts were rated with a **Low or Very Low** post-mitigation impact significance for the **construction and decommissioning phases**, with the exception of Aquatic Biodiversity impacts, which were rated with a Moderate to Low post-mitigation impact significance; and Avifauna impacts, which were rated with a Moderate to Low post-mitigation impact significance for the construction phase (not identified for the decommissioning phase). A similar trend is applicable to the **operational phase**, with Visual impacts also being rated as **Moderate**.



**Table G. Overall Impact Significance with the Implementation of Mitigation Measures for Cumulative Negative Impacts**

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
<b>CUMULATIVE NEGATIVE IMPACTS</b>						
Agriculture and Soils	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Low		Low		Low	
Aquatic Biodiversity	Moderate	Low	Moderate	Low	Moderate	Low
Avifauna	Moderate	Low	Moderate	Low	Not identified	
Visual	Low		Moderate		Very Low	
Heritage (Archaeology and Cultural Landscape)	Low		Low		Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	

**OVERALL ENVIRONMENTAL IMPACT ASSESSMENT AND REASONED OPINION FROM THE EAP**

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

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

The proposed project will take place within the development footprint on the preferred and approved project site, as contemplated in the accepted Final Scoping Report. The development footprint and buildable areas avoid the “no-go” sensitive features identified and mapped by the respective specialists, where relevant and applicable. The project layouts are final, avoid the “no-go” sensitivities for key infrastructure placement, and are based on the recommendations of the specialists. The specialists also confirmed that the project layouts are acceptable.

This EIA has considered the nature, scale and location of the development as well as the wise use of land. When considering the timing of this project, the IRP 2019 proposes to secure 17 800 MW of renewable energy capacity by 2030. As discussed in the preceding chapters of this EIA Report, it is the Project Applicant’s intention to bid this project in the future bidding rounds of the Renewable

Energy Independent Power Producer Procurement Programme (REIPPPP) and Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP).

The proposed project will be in line with and will be supportive of the objective of the MLM IDP in terms of creating more job opportunities. The proposed project will assist in local job creation during the construction and operational phases (if approved by the DFFE). It should be noted that employment during the construction phase will be temporary.

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

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

Taking into consideration the findings of the Scoping and EIA Process and given the national and provincial strategic requirements for infrastructure development, particularly from an electricity generation perspective, and based on the fact that the environmental sensitivity of the study area is low, medium, and high sensitivity, with some very high sensitivity areas, it is the opinion of the EAP, that the benefits of the project outweighs the costs and that the project will make a positive contribution to sustainable infrastructure development in the MLM, as well as the town of Smithfield.

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

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

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

In addition, it is recommended that the EMPs compiled as part of this EIA Process, included in Appendix J and Appendix K of this EIA Report, be approved concurrently in the EA (should it be granted). A detailed **final** layout of the MTS and LILO was identified during the EIA Phase, and included in Chapter 15 of the Final EIA Report, as well as Appendix D and the EMPs