FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Scoping and Environmental Impact Assessment for the Proposed Development of a Solar Photovoltaic (PV) Facility and associated infrastructure (Biesjesvlei PV1); Battery Energy Storage System and associated infrastructure (Biesjesvlei BESS 1); and 132 kV Overhead Power Line from the on-site substation to a proposed Main Transmission Substation and associated infrastructure (Biesjesvlei EGI 1); near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State.

September 2024

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

CSIR
Touching lives through innovation

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

Scatec

veroniva
Renewable Energy Development

PART A: MAIN REPORT

CSIR
Touching lives through innovation

SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT

for the

Proposed Development of a Solar Photovoltaic (PV) Facility and associated infrastructure (Biesjesvlei PV1); Battery Energy Storage System and associated infrastructure (Biesjesvlei BESS 1); and 132 kV Overhead Power Line from the on-site substation to a proposed Main Transmission Substation and associated infrastructure (Biesjesvlei EGI 1); near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

September 2024

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

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

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

Report Details

Title:	Scoping and Environmental Impact Assessment for the Proposed Development of a Solar Photovoltaic (PV) Facility and associated infrastructure (Biesjesvlei PV1); Battery Energy Storage System and associated infrastructure (Biesjesvlei BESS 1); and 132 kV Overhead Power Line from the on-site substation to a proposed Main Transmission Substation and associated infrastructure (Biesjesvlei EGI 1); near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State: FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT.	
Purpose of this report:	The purpose of this Final EIA Report is to: ▪ Present the details of and the need for the proposed projects; ▪ Describe the affected environment at a sufficient level of detail to facilitate informed decision-making; ▪ Provide an overview of the EIA Process that has been followed, including public consultation; ▪ Provide an overview of the potential positive and negative impacts of the proposed projects on the environment; ▪ Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the proposed projects; and ▪ Provide an Environmental Management Programme (EMPr) for the relevant phases of the projects. The Draft EIA Report was released to all Interested and/or Affected Parties (I&APs), Organs of State and relevant stakeholders for a 30-day review period, which extended from **2 August 2024 to 2 September 2024**, 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.	
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Formatting and Desktop Publishing:	Magdel van der Merwe, DTP Solutions	
Date:	September 2024	
DFFE Reference No:	▪ Biesjesvlei PV1: 14/12/16/3/3/2/2526 ▪ Biesjesvlei BESS 1: 14/12/16/3/3/2/2527 ▪ Biesjesvlei EGI 1: 14/12/16/3/3/2/2528	
To be cited as:	CSIR, 2024. Scoping and Environmental Impact Assessment for the Proposed Development of a Solar Photovoltaic (PV) Facility and associated infrastructure (Biesjesvlei PV1); Battery Energy Storage System and associated infrastructure (Biesjesvlei BESS 1); and 132 kV Overhead Power Line from the on-site substation to a proposed Main Transmission Substation and associated infrastructure (Biesjesvlei EGI 1); near Smithfield, within the Mohokare Local Municipality, Xhariep District Municipality, Free State. Final Environmental Impact Assessment Report. CSIR Report Number: CSIR/SPLA/SECO/ER/2024/0002/B	

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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

	Change made – Yes (denoted by ✓) or N/A (denoted by ■)																																				
	Chapters																					Appendices																
Key change description	**Summary**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
The term “Draft EIA Report” has been updated to “Final EIA Report”, where applicable.	✓	✓	✓	✓	✓	✓	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	✓	✓	✓	✓	✓	✓	✓	■
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) and Traffic Impact Assessment (Appendix E.9).	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	■
Updated the database of I&APs, Stakeholders and Organs of State to reflect additions and updates to the database.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■
Updated Chapter 14, EMPrs, and Appendix E.9 (Traffic Impact Assessment) with recommendations provided by Stakeholders during the 30-day comment period (i.e. SANRAL), where relevant.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	✓	✓	✓	✓	✓	✓	■
Updated the Chapter 9, Chapter 20, EMPrs 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.	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	■	■
Clarity that only one BESS technology was assessed in the EIA Process and thus considered preferred (i.e. Lithium-Ion BESS).	■	■	✓	■	■	✓	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
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	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	✓	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

	Change made – Yes (denoted by ✓) or N/A (denoted by ■)																																			
	Chapters																					**Appendices**															
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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.

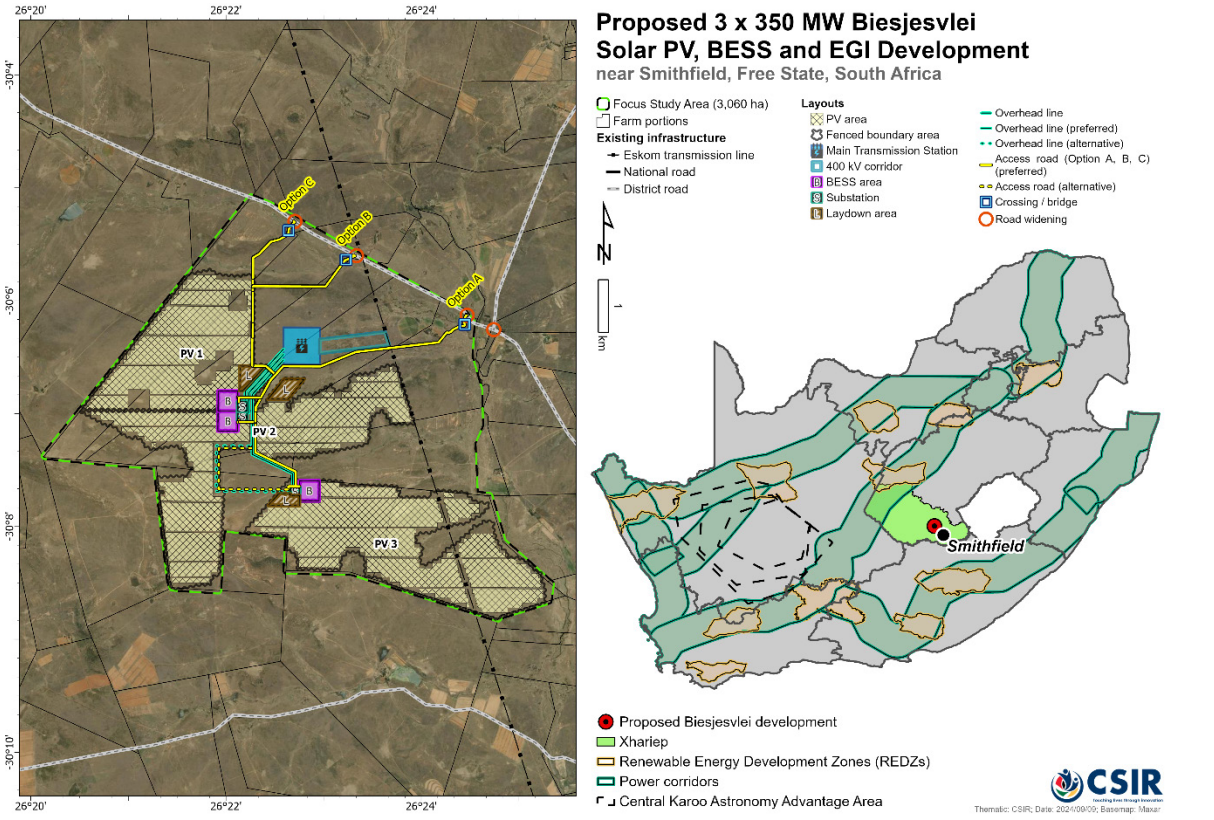

Figure A. Locality map for the proposed Biesjesvlei Solar PV1 to PV3; Biesjesvlei BESS 1 to 3; Biesjesvlei EGI 1 to 3; and Biesjesvlei MTS and LILO, near Smithfield in the Free State.

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 LILO from the MTS to the existing Eskom power line, as well as associated infrastructure (i.e. Biesjesvlei MTS and LILO).

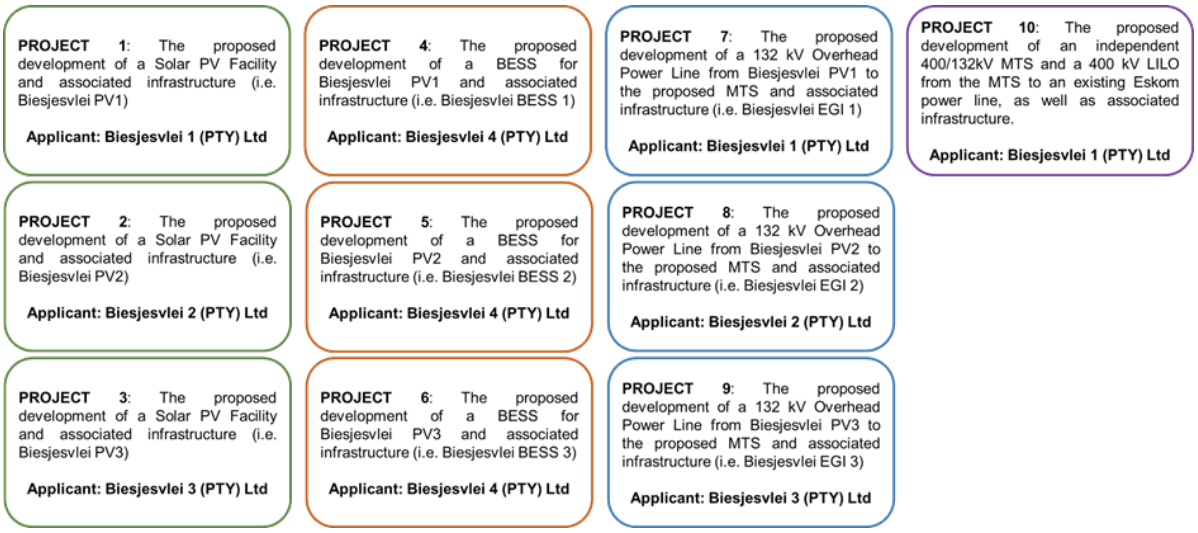

Figure B: Breakdown of the projects that comprise the Biesjesvlei Solar PV, BESS, EGI, MTS and LILO Development.

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) 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.

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). 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).

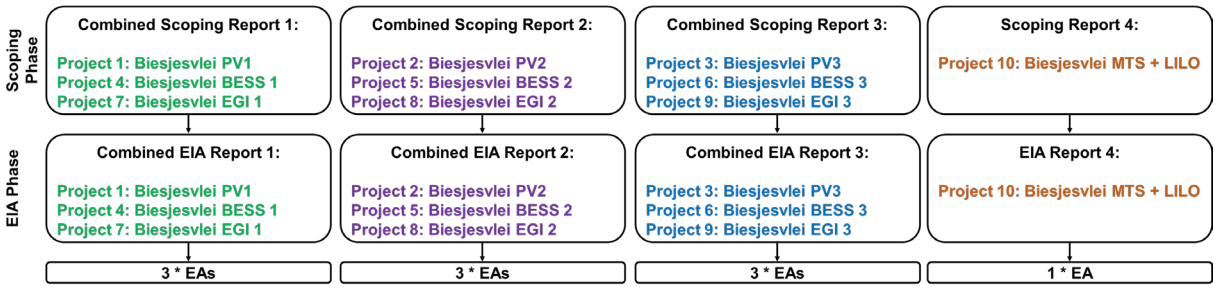

Figure C: Environmental Assessment Reporting Structure for the Biesjesvlei Solar PV, BESS, EGI, MTS and LILO Development.

This combined EIA Report only addresses Biesjesvlei PV1, Biesjesvlei BESS 1 and Biesjesvlei EGI 1 (i.e. Projects 1, 4 and 7, respectively).

Note: The information throughout this Executive Summary applies to each of the projects addressed in this report (i.e. Project 1 (Biesjesvlei PV1), Project 4 (Biesjesvlei BESS 1) and Project 7 (Biesjesvlei EGI 1)), unless where mentioned otherwise.

COMPETENT AUTHORITY AND APPLICANTS

The Competent Authority for the proposed projects is the DFFE, and the Project Applicants are as follows:

- Project 1: Biesjesvlei PV1 and associated infrastructure: Biesjesvlei 1 (Pty) Ltd;
- Project 4: Biesjesvlei BESS 1 and associated infrastructure: Biesjesvlei 4 (Pty) Ltd; and
- Project 7: Biesjesvlei EGI 1 and associated infrastructure: Biesjesvlei 1 (Pty) Ltd.

NEED FOR THE EIA AND APPROACH

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

Project 1 (Biesjesvlei PV1) requires a Scoping and EIA Process; Project 4 (Biesjesvlei BESS 1) requires a BA Process; and Project 7 (Biesjesvlei EGI 1) requires a BA Process in terms of the 2014 NEMA EIA Regulations (as amended). However, the proposed projects (i.e. Project 1 (Biesjesvlei PV1), Project 4 (Biesjesvlei BESS 1) and Project 7 (Biesjesvlei EGI 1)) have collectively been subjected to a Scoping and EIA Process; and combined reporting has accordingly been approved by the DFFE (as noted above).

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

Table A. Key Listed Activities Per Project

Project	Listing Notice, Listed Activity and Description
Project 1: Biesjesvlei PV1 and associated infrastructure	**GN R325 (Listing Notice 2), Activity 1:** The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facility or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure
Project 4: Biesjesvlei BESS 1 and associated infrastructure	**GN R327 (Listing Notice 1), Activity 27**: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Project 7: Biesjesvlei EGI 1 and associated infrastructure	**GN R327 (Listing Notice 1), Activity 11 (i):** 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.

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. The term "N/A" in the table below indicates that the specialist study in question is not relevant to that specific project.

Table B. Project Team for the Scoping and EIA Process

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN	PROJECT 1 – PV1	PROJECT 4 – BESS 1	PROJECT 7 – EGI 1
Environmental Management Services (CSIR)					
Paul Lochner (*Registered EAP* (2019/745))	CSIR	EAP, Technical Advisor and Quality Assurance	✓	✓	✓
Rohaida Abed (*Pr.Sci.Nat.; Registered EAP* (2021/4067))	CSIR	EAP and Project Manager	✓	✓	✓
Helen Antonopoulos (*Cand.Sci.Nat.*)	CSIR	Project Officer	✓	✓	✓
Suvasha Ramcharan (*Cand.Sci.Nat.*)	CSIR	Project Officer	✓	✓	✓
Phindile Mthembu	CSIR	Project Officer	✓	✓	✓
Luanita Snyman van der Walt *(Pr.Sci.Nat.)*	CSIR	GIS Specialist	✓	✓	✓
Lizande Kellerman *(Pr.Sci.Nat.)*	CSIR	Public Participation Specialist	✓	✓	✓
Specialists					
Johann Lanz (*Pr.Sci.Nat.)*	Private	Agriculture and Soils Compliance Statement	✓	✓	✓

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN	PROJECT 1 – PV1	PROJECT 4 – BESS 1	PROJECT 7 – EGI 1
Corné Niemandt *(Pr.Sci.Nat.)* Samuel Laurence *(Pr.Sci.Nat.)*	Enviro-Insight cc	Terrestrial Biodiversity Assessment, Terrestrial Plant Species Compliance Statement, and Terrestrial Animal Species Compliance Statement	✓	✓	✓
Russell Tate *(Pr.Sci.Nat.)*	Tate Environmental Specialist Services (sub-contracted by Enviro-Insight)	Aquatic Biodiversity and Species Assessment	✓	✓	✓
Samuel Laurence *(Pr.Sci.Nat.)*	Enviro-Insight cc	Avifauna Impact Assessment	✓	✓	✓
Quinton Lawson (*SACAP, 3686*) Bernard Oberholzer (*SACLAP, 87018*)	QARC and BOLA	Visual Impact Assessment	✓	✓	✓
Dr Jayson Orton (*APHP: Member 43; ASAPA CRM Section: Member 233*)	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology and Cultural Landscape)	✓	✓	✓
Dr John Almond *(PSSA and APHP Member)*	Natura Viva cc	Palaeontology	✓	✓	✓
Sue Reuther	SLR Consulting	Socio-Economic Impact Assessment	✓	✓	N/A
Annebet Krige *(Pr Eng)*	Sturgeon Consulting	Traffic Impact Assessment	✓	✓	N/A
Dale Barrow (*Pr.Sci.Nat.)* Hardy Luttig Louis Jonk (*Pr.Sci.Nat.)* Julian Conrad	GEOSS South Africa (PTY) Ltd	Geohydrology Assessment	✓	✓	N/A
Dale Barrow (*Pr.Sci.Nat.)* Hardy Luttig Louis Jonk (*Pr.Sci.Nat.)* Julian Conrad	GEOSS South Africa (PTY) Ltd	Geotechnical Letter of Professional Opinion	✓	✓	✓
Debbie Mitchell *(Pr Eng)*	Ishecon cc	Battery Storage High Level Safety, Health and Environment Risk Assessment	N/A	✓	N/A
Rohaida Abed *(Pr.Sci.Nat.; Registered EAP (2021/4067))* Lizande Kellerman *(Pr.Sci.Nat.)* Willan Adonis[1]	CSIR	Civil Aviation Site Sensitivity Verification	✓	✓	✓
Rohaida Abed *(Pr.Sci.Nat.; Registered EAP (2021/4067))* Lizande Kellerman *(Pr.Sci.Nat.)* Willan Adonis[2]	CSIR	Defence Site Sensitivity Verification	✓	N/A	N/A

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 BESS High Level Safety, Health and Environment Risk Assessment serves as a technical report and the aforementioned legislation will thus not be applicable.

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, and they apply to all the projects addressed in this EIA Report.

[1] This staff member resigned from the CSIR at the end of December 2023.
[2] This staff member resigned from the CSIR at the end of December 2023.

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

FARM PORTION	SG CODE
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	F03100000000003400001

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 PV1 (Project 1) and technical information is described in Table D below.

Table D. Summary of the components and associated infrastructure for Biesjesvlei PV1 (Project 1)

Component	Description
Solar Field	
Type of Technology	Solar Photovoltaic (PV) Technology
Generation Capacity (Maximum Installed)	▪ Up to 350 MWdc
Total footprint that includes all associated infrastructure within the fenced off area of the PV facility (excluding access roads)	▪ Maximum 450 ha
PV Panel Structure (with the following possible tracking and mounting systems): ▪ Single Axis Tracking structures (aligned north-south); ▪ Fixed Axis Tracking (aligned east-west); ▪ Dual Axis Tracking (aligned east-west and north-south); ▪ Fixed Tilt Mounting Structure; or ▪ Bifacial Solar Modules.	▪ Height: Approximately 10 m (maximum)
Building Infrastructure	
Offices	▪ Maximum height: 7 m ▪ Footprint: 1000 m^2
Operational and maintenance (O&M) control centre	▪ Maximum height: 7 m ▪ Footprint: 500 m^2
Warehouse / workshop	▪ Maximum height: 7 m ▪ Footprint: 500 m^2
Ablution facilities	▪ Maximum height: 7 m ▪ Footprint: 50 m^2
Converter / Inverter stations	▪ Height: 2.5 m to 7 m (maximum) ▪ Footprint: 2500 m^2
Guard Houses	▪ Height: 3 m ▪ Footprint: 40 m^2
On-site substation and/or switching station. This will include the section that will be maintained by the Independent Power Producer (IPP).	▪ Footprint of the IPP Substation: Approximately 10 000 m^2 ▪ Height: 10 m

Component	Description
	▪ Capacity: 132 kV ▪ This section includes all the high voltage infrastructure leading up to the Point of Connection (i.e. the Project Applicant's section of the proposed on-site substation, which is also referred to the **PV Facility IPP Substation**).
Associated Infrastructure	
On-site medium voltage internal cables / power lines	▪ Placement: Underground or above ground ▪ Capacity: 33 kV ▪ Depth (if underground): Maximum depth of 1.6 m ▪ Height (if aboveground): Maximum height of 9 m
Underground low voltage cables or cable trays	▪ Depth: Maximum depth of 1.4 m
External Access Roads	▪ The study area can be accessed via various existing main roads and gravel roads. Specifically, three access route options have been considered: Access Route Option A, Option B and Option C, which are routed along the N6; S1262; and S119. Access Route Options A, B and C have different access points off the S119. Direct access to the proposed projects will be taken from the S119 along an existing farm access point, and thereafter new access roads will be developed within the study area, where they do not align with existing roads, or existing roads will be used where possible. Existing roads will be used as far as practically achievable. ▪ New Access Roads: Where new access roads are required within the study area, these will be 4 - 8 m wide. ▪ Existing Access Roads: Where existing roads are used within the study area, they may need to be upgraded, as described below. ▪ The Traffic Specialist has noted the following (additional detail is provided in Section 2.7 of Chapter 2 of this Final EIA Report): o The N6, S1262, and S119 are of a sufficient width to accommodate truck movement, however widening by more than 4 m or more than 6 m will be required at localised positions (i.e. intersections).

Component	Description
	Specifically, road widening by approximately 9 m will be required at the S1262 and S119 intersection. In addition, the N6 and S1262 intersection will need to be widened by approximately 2 m on the western side of the intersection and by approximately 2 m on the eastern side of the intersection. ○ Existing internal farm roads (local farm roads within the farm property boundaries) will need to be upgraded to accommodate the abnormal loads as required. This includes the following: ▪ Intersection S119 and Access Route Option A: Road widening by approximately 14 m (at the widest point) will be required. ▪ Intersection S119 and Access Route Option B: Road widening by approximately 7 m (at the widest point) will be required. ▪ Intersection S119 and Access Route Option C: Road widening by approximately 14 m (at the widest point) will be required. ▪ The existing bridge on the S119 will also need to be inspected by a Structural Engineer. ▪ The existing bridge on the existing internal farm road along Access Route Option A will need to be rebuilt/upgraded or realigned to minimise the turns that the abnormal loads need to navigate, if this access route is used for the proposed projects. ▪ A new bridge will need to be developed along Access Route Option B, if this option is used for the proposed projects. ▪ A new bridge will need to be developed along Access Route Option C, if this option is used for the proposed projects.
Internal roads	▪ Details: New internal gravel roads will need to be established within the fenced off area of the PV facility.

Component	Description
	▪ Width: Up to 4 m
Fencing around the PV Facility Perimeter	▪ Type: Palisade or mesh or fully electrified ▪ Security: Access points will be managed and monitored by an appointed security service provider. ▪ Height: Between 2 - 3 m
Panel maintenance and cleaning area	▪ A dedicated panel maintenance and cleaning area will be required on site during the operational phase.
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Work area during the construction phase (i.e. laydown area)	▪ Footprint: Up to 13 ha.
Water Requirements	▪ Approximately 8 520 m^3 to 12 000 m^3 of water is estimated to be required per year for the construction phase. ▪ Approximately 10 000 m^3 to 16 000 m^3 of water is estimated to be required per year for the operational phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 12 – 24 months
Operational Period	▪ Once the commercial operation date is achieved, the proposed facility will generate electricity for a minimum period of 20 to 30 years.

A summary of the key components of the proposed Biesjesvlei BESS 1 (Project 4) and technical information is described in Table E below.

Table E. Summary of the components and associated infrastructure for Biesjesvlei BESS 1 (Project 4)

Component	Description
Battery Energy Storage System (BESS)	
BESS Area/Facility	▪ Technology: Lithium-Ion BESS ▪ Estimated Capacity: Maximum 1 200 MWh ▪ Total Footprint: Approximately 10 ha ▪ Height: Between 5 m and 10 m ▪ The BESS area will include the following sub-components: o BESS Units; o BESS Laydown Area; o BESS IPP Substation; o Laydown area for the BESS IPP Substation; o BESS Operational and Maintenance (O&M) Office, including Ablutions; o Access Roads; o Internal Roads; o MV cables between BESS Units; o Transformer at the BESS IPP Substation; o Internal cables; and o Overhead cables at the BESS IPP Substation; o Fencing and Security; and o Parking Area.
BESS Sub-Components *(to be located within the 10 ha area of the overall BESS Facility)*	
BESS Units	▪ This will include battery packs or containers, with an area of approximately 6 ha, and height up to 5 m.
BESS Laydown Area	▪ Footprint: Approximately 1.25 ha
BESS IPP Substation	▪ Footprint: Approximately 1 ha ▪ Height: Up to 15 m ▪ Capacity: 33 kV to 132 kV ▪ This will be maintained by the IPP.
Laydown Area for the BESS IPP Substation	▪ Footprint: Approximately 0.5 ha
BESS Operational and Maintenance (O&M) Office	▪ Maximum height: Up to 5 m ▪ Footprint: Approximately 0.5 ha

Component	Description
	▪ The BESS O&M Office will also include Ablution facilities.
External Access Roads	▪ The study area can be accessed via various existing main roads and gravel roads. Specifically, three access route options have been considered: Access Route Option A, Option B and Option C, which are routed along the N6; S1262; and S119. Access Route Options A, B and C have different access points off the S119. Direct access to the proposed projects will be taken from the S119 along an existing farm access point, and thereafter new access roads will be developed within the study area, where they do not align with existing roads, or existing roads will be used where possible. Existing roads will be used as far as practically achievable. ▪ New Access Roads: Where new access roads are required within the study area, these will be 4 - 8 m wide. ▪ Existing Access Roads: Where existing roads are used within the study area, they may need to be upgraded, as described below. ▪ The Traffic Specialist has noted the following (additional detail is provided in Section 2.7 of Chapter 2 of this Final EIA Report): o The N6, S1262, and S119 are of a sufficient width to accommodate truck movement, however widening by more than 4 m or more than 6 m will be required at localised positions (i.e. intersections). Specifically, road widening by approximately 9 m will be required at the S1262 and S119 intersection. In addition, the N6 and S1262 intersection will need to be widened by approximately 2 m on the western side of the intersection and by approximately 2 m on the eastern side of the intersection. o Existing internal farm roads (local farm roads within the farm property boundaries) will need to be upgraded to accommodate the abnormal loads as required. This includes the following: ▪ Intersection S119 and Access Route Option A: Road widening

Component	Description
	by approximately 14 m (at the widest point) will be required. ▪ Intersection S119 and Access Route Option B: Road widening by approximately 7 m (at the widest point) will be required. ▪ Intersection S119 and Access Route Option C: Road widening by approximately 14 m (at the widest point) will be required. ▪ The existing bridge on the S119 will also need to be inspected by a Structural Engineer. ▪ The existing bridge on the existing internal farm road along Access Route Option A will need to be rebuilt/upgraded or realigned to minimise the turns that the abnormal loads need to navigate, if this access route is used for the proposed projects. ▪ A new bridge will need to be developed along Access Route Option B, if this option is used for the proposed projects. ▪ A new bridge will need to be developed along Access Route Option C, if this option is used for the proposed projects.
Internal Roads	▪ Details: New internal gravel roads will need to be established within the BESS facility area. ▪ Width: Up to 4 m
Medium Voltage (MV) cables between the BESS Units	▪ Placement: Buried/Ducted ▪ Capacity: Ranges from 1 kV up to 33 kV ▪ Depth: Up to 2 m
Transformer at the BESS IPP Substation	▪ Capacity: Ranges above 33 kV ▪ Depth/Height: Up to 2 m
Internal cables in the BESS facility	▪ Placement: Buried / ducted ▪ Capacity: Ranges from 1 kV up to 33 kV ▪ Depth: Up to 2 m

Component	Description
Overhead cables at the BESS IPP Substation	▪ Placement: Overhead ▪ Capacity: Ranges above 33 kV ▪ Height: Up to 12 m
Fencing of the BESS Facility and Security	▪ Type: Palisade or mesh or fully electrified ▪ Height: Up to 5 m ▪ Security: Access to the BESS Facility will be managed and monitored by an appointed security service provider.
Parking Area	▪ A parking area will be established at the BESS Facility for staff
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Water Requirements	▪ Approximately 350 m^3 to 450 m^3 of water is estimated to be required per year for the construction phase. ▪ Approximately 200 m^3 to 300 m^3 of water is estimated to be required per year for the operational phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 12 - 24 months
Operational Period	▪ Once the commercial operation date is achieved, the proposed BESS will store and dispatch electricity for a minimum period of 20 to 30 years.

A summary of the key components of the proposed Biesjesvlei EGI 1 (Project 7) and technical information is described in Table F below.

Table F. Summary of the components and associated infrastructure for Biesjesvlei EGI 1 (Project 7)

Component	Description
On-site substation and/or switching station. This will include the section that will be transferred from the Independent Power Producer (IPP) to Eskom.	▪ Footprint: Up to 10 000 m^2 ▪ Height: Up to 15 m ▪ Capacity: 132 kV ▪ The section includes all the high voltage infrastructure extending from the Point of Connection (i.e. Eskom's section of the proposed on-site substation, which is also referred to as the **Switching Station**).
132 kV Overhead Power Line	▪ The power line will be routed from the on-site substation to the proposed MTS. ▪ Height: Up to 37 m ▪ Length: Up to 2 km ▪ Servitude: 40 m wide ▪ Pylon specifications: o Type: Lattice structures or monopoles. o Tower: Self-supporting and Angle Strain. o Foundation: The size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2. The minimum working area required around a structure position is 20 m x 20 m. o Span Length: 200 m – 300 m
Service Road	▪ Details: A new gravel service road will need to be established below the power line. ▪ Width: Up to 4 m
External Access Roads	▪ Refer to the detail provided in Section 2.7 of Chapter 2 of this Final EIA Report. Note that the Biesjesvlei EGI 1 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.

Component	Description
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Work area during the construction phase (i.e. laydown area)	▪ Footprint: 0.5 ha to 1 ha
Water Requirements	▪ Approximately 100 m^3 of water is estimated to be required per year for the construction phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 6 - 24 months

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 G. 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 17 of this EIA Report, contain all the detail. The recommended mitigation measures have also been included in the EMPrs in Appendix J to Appendix O of this EIA Report.

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

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.1 – Agriculture Compliance Statement	**Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1; Project 4 – Biesjesvlei BESS 1; and Project 7 – Biesjesvlei EGI 1.** **Negative Direct Impact:** **Construction, Operation and Decommissioning Phases:** • 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. • However, the proposed power line has negligible agricultural impact, regardless of its route and design and the agricultural potential and sensitivity of the land it crosses.	**Note: The information presented below applies to Project 1 – Biesjesvlei PV1 and Project 4 – Biesjesvlei BESS 1.** **Design Phase:** ▪ Design an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion. **Construction and Decommissioning Phases:** ▪ Implement an effective system of stormwater run-off control, where it is required (as specified above). ▪ Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion. ▪ Topsoil should only be stripped in areas that are excavated. Across most of the site, including construction laydown areas, it will be much more effective for rehabilitation, to retain the topsoil in place. If levelling requires significant cutting, topsoil should be temporarily stockpiled and then re-spread after cutting, so that there is a covering of topsoil over the entire cut surface. ▪ If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. **Operational Phase:** ▪ Maintain the stormwater run-off control system. Monitor erosion and remedy the stormwater control system in the event of any erosion occurring. ▪ Facilitate re-vegetation of denuded areas throughout the site.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.2: Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species Assessment	**Negative Direct Impacts:** **Note: The information presented below applies to Project 1 – Biesjesvlei PV1 only.** **Construction Phase:** • Fragmentation and loss of habitat and sensitive features. • Loss of protected species. • Introduction and spread of alien invasive species. • Increased erosion and soil compaction. • Littering and General Pollution. **Operational Phase:** • Increase in alien invasive species. • Loss of species composition and diversity. • Littering and General Pollution. **Decommissioning Phase:** • Alien invasive species management. • Loss of habitat. **Note: The information presented below applies to Project 4 – Biesjesvlei BESS 1 only.** **Construction Phase:** • Fragmentation and loss of habitat and sensitive features. • Loss of protected species. • Introduction and spread of alien invasive species. • Increased erosion and soil compaction. • Littering and General Pollution. **Operational Phase:** • Increase in alien invasive species. **Decommissioning Phase:** • Alien invasive species management. • Loss of habitat.	**Note: The mitigation measures below apply equally to the Biesjesvlei PV1, Biesjesvlei BESS 1 and Biesjesvlei EGI 1 projects, except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ No development should take place within High and Very High sensitivity areas and/or buffer zones. Accordingly, the Koppies habitat should be avoided. 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. ▪ No construction related activities, such as the site camp, storage of materials, temporary roads or ablution facilities may be located in the very high sensitivity areas including their buffers. ▪ Minimise impacts to surrounding natural areas by demarcating development footprint and clearly indicating no-go areas. ▪ 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). ▪ 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. ▪ Utilise existing access routes as far as possible. Confine the movement of vehicles to the access routes to and from the site and to the construction areas. ▪ Rehabilitate new vehicle tracks and areas where the soil has been compacted as soon as possible. ▪ Monitor the entire site for signs of erosion. ▪ Refer to mitigation measures relevant to watercourse crossings and development close to watercourses as recommended by the Aquatic Biodiversity Specialist. ▪ General good management actions in terms of spills, refuelling and waste management. These have been included in the Environmental Management Programme. ▪ Where the access road crosses the watercourse the necessary mitigation measures need to be in place to reduce any negative impacts on the feeding and breeding habitat as well as movement of *A. capensis* (African Clawless Otter) and *H. maculicollis* (Spotted-necked otter). Where required, the necessary rehabilitation must be done to restore habitat and ecosystem functioning for the species. Restoring riparian habitats and maintaining ecosystem services can align with the Working for Water Programme.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Note: The information presented below applies to Project 7 – Biesjesvlei EGI 1 only. **Construction Phase:** • Fragmentation and loss of habitat and sensitive features. • Loss of protected species. • Introduction and spread of alien invasive species. • Increased erosion and soil compaction. • Littering and General Pollution. **Operational Phase:** • Increase in alien invasive species. • Loss of species composition and diversity. • Littering and General Pollution. **Decommissioning Phase:** • Alien invasive species management. • Loss of habitat. **Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1; Project 4 – Biesjesvlei BESS 1; and Project 7 – Biesjesvlei EGI 1.** **Negative Cumulative Impacts:** • **Construction Phase**: Fragmentation and loss of habitat and sensitive features. • **Construction Phase**: Loss of protected species. • **Construction, Operational and Decommissioning Phases**: Increased alien invasive species.	▪ The riverbanks need to be stabilised during the construction phase (in terms of river crossing development). ▪ Ideally, the bridge crossing should be constructed in the dry winter months (June to September) to reduce potential physical impacts on fauna, and to reduce sedimentation runoff in the watercourse which is less favourable for otter species. However, since the construction phase has a tight window period (18-24 months) to finish construction and construction is dependent on heavy vehicles reaching the site, it might not necessarily be feasible to wait. Furthermore, once financial closure has been reached, the developer cannot wait to commence with the construction of the bridge. ▪ **Biesjesvlei PV1**: For PV panel installations, no bulldozing to take place for ground preparation. Only sites where PV panels are to be placed may be transformed, including making use of the existing roads and planned roads. There might still be bulldozing in other areas, like for roads, substation, and laydown area, therefore some transformation will occur for permanent infrastructure, but this is a small extent of the total development footprint. **Operational Phase:** ▪ **Biesjesvlei PV1 and Biesjesvlei EGI 1**: 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. ▪ **Biesjesvlei PV1 and Biesjesvlei EGI 1**: General good management actions in terms of spills, refuelling and waste management. These have been included in the Environmental Management Programme. ▪ Manage plants below the overhead power line based on continuous maintenance. ▪ Follow an alien and invasive species control and monitoring plan. **Decommissioning Phase:** ▪ The loss of vegetation is unavoidable within the approved layout development footprint, but sensitive areas must be avoided when dismantling of infrastructure. ▪ 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 ▪ Alien invasive management as per the construction and operational phase.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.3: Aquatic Biodiversity and Species	**Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1; Project 4 – Biesjesvlei BESS 1; and Project 7 – Biesjesvlei EGI 1.** **Negative Direct Impacts:** **Construction, Operational, Decommissioning Phases:** ▪ Habitat quality degradation. ▪ Water quality degradation. ▪ Aquatic habitat connectivity loss. **Negative Cumulative Impacts:** **Construction, Operational, Decommissioning Phases:** ▪ Habitat quality degradation. ▪ Water quality degradation. ▪ Aquatic habitat connectivity loss.	**Note: The mitigation measures below apply equally to the Biesjesvlei PV1, Biesjesvlei BESS 1 and Biesjesvlei EGI 1 projects.** **Construction Phase:** ▪ 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. ▪ Culverts and road crossings are recommended to be designed based on the stream simulation culvert design process (United States Department of Agriculture (USDA), 2008). ▪ Culverts should allow for the free movement of aquatic biota including fish such as *Enteromius sp*. ▪ The placement of instream crossing infrastructure must not result in downstream erosion or upstream impoundment. ▪ The implementation of bank rehabilitation actions must take place. ▪ Where culverts are required, it is recommended that these are spread across the wetland units and not directed through single culverts. ▪ Access routes into or adjacent to the wetlands must make use of existing road ways and crossings where possible. ▪ Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided. ▪ 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. ▪ Storm-water verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion. ▪ 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. ▪ Sediment screens must be inspected, maintained and cleared every month or after significant rainfall (>150mm/24hrs). ▪ An alien vegetation removal and management plan must be implemented along the verges of the roads and crossing points. ▪ General storm-water management practices should be included in the design phase and implemented during the construction phase.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		▪ Watercourse monitoring should take place annually as part of the environmental management programme (EMPr). **Operational Phase:** ▪ The implementation of the buffer zones stipulated in the Aquatic Biodiversity and Species Assessment. ▪ Clean and dirty surface water separation and a storm-water management plan must be put into place via standard best practice methods. ▪ A clear storm-water management plan for hardened surfaces must be implemented. ▪ 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. ▪ The above must be audited within 3 months of completing the phase. ▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression. ▪ Monitoring of instream structures on an annual basis. **Decommissioning Phase:** ▪ All contractors and staff are to have undergone an induction / training on the location of sensitive No-Go areas and basic environmental awareness. ▪ Areas where decommissioning is to take place must be clearly demarcated. Any areas not demarcated must be avoided. ▪ Storm-water generated from roadways must be captured and buffered, where flow velocities are to be significantly reduced before discharge into the environment. ▪ Storm-water verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion. ▪ Any materials excavated must not be deposited in the wetlands or areas where it is prone to being washed downstream or impeding natural flow. ▪ Stockpiling or storage of materials and/or waste must be placed beyond the defined buffers in the Aquatic Biodiversity and Species Assessment for each respective activity. ▪ Disturbed areas must be re-vegetated after completion of the phase.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.4: Avifauna Assessment	**Negative Direct Impacts:** **Note: The information presented below applies to Project 1 – Biesjesvlei PV1 only.** **Construction Phase:** ▪ Habitat destruction and loss (including foraging and breeding), and fragmentation due to displacement (avoidance of disturbance) due to infrastructure installation and associated dust effects. ▪ Destruction or disturbance of bird roosts. ▪ Disturbance due to noise such as machinery and construction activities. **Operational Phase:** ▪ Disturbance due to noise such as, machinery movements and maintenance operations. ▪ Loss of bird foraging habitat. ▪ Attraction to the facility. ▪ Chemical pollution spills. ▪ Bird mortalities due to vehicle collisions, collisions with infrastructure and/or combustion. ▪ Disruption of bird migratory pathways. **Decommissioning Phase:** ▪ Disruption of bird migratory pathways during the decommissioning phase. ▪ Habitat loss reclamation from rehabilitation activities (*positive impact*). **Note: The information presented below applies to Project 4 – Biesjesvlei BESS 1 only.** **Construction Phase:** ▪ Habitat destruction and loss (including foraging and breeding), and fragmentation due to displacement (avoidance of disturbance) due to infrastructure installation and associated dust effects. ▪ Destruction or disturbance of bird roosts. ▪ Disturbance due to noise such as machinery and construction activities. **Operational Phase:** ▪ Disturbance due to noise such as, machinery movements and maintenance operations. ▪ Loss of bird foraging habitat. ▪ Attraction to the facility. ▪ Chemical pollution spills.	**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.** **Note: The mitigation measures below apply to the Biesjesvlei PV1 project only.** **Construction Phase:** ▪ Avoid avifaunal specific highly sensitive areas and their associated buffers, such as the local drainage lines, impoundments, smaller watercourses, pans and rocky koppies. Avoidance mitigation to be applied to the positioning of the main infrastructure and supporting infrastructure. *Note that the panels have avoided the no-go areas identified by the avifauna specialists*. ▪ Roads must utilise or upgrade existing farm roads as far as possible. All roads and crossings must be engineered not to impede surface or subsurface flow in any way. ▪ All underground cables bisecting sensitive habitats must be placed below the subsurface flow of the ephemeral wetlands with the linear construction pits subjected to full rehabilitation in order to maintain normal subsurface flow. ▪ For all panel infrastructure, commencement of construction should be restricted to the months of March, April, May, June, July, August, September, October (latest) to minimise destruction of the avifaunal habitats during their optimal conditions. Timing of any panel construction to not commence in November, December, January and February in order to avoid breeding periods of species within the sensitive drainage lines, wetlands and the general region. **Operational Phase:** ▪ It is recommended that speed limits of 40 km/h within the project area be strictly enforced during the wet season (November to April). ▪ In all areas where internal roads intersect with semi-natural or natural habitat, all new fences that are constructed (if any) must be set back at least (strictly) 75 m from the edge of every service road in order to allow for vulnerable species such as coursers, cranes and korhaans to obtain adequate height after being flushed by vehicle traffic. An alternative mitigation measure and where a 75 m buffer is not possible, new fences must be set back preferably 2 m and no more than 5 m (directly adjacent) from the edge of internal roads. ▪ Buffers should be maintained around all habitats with a Site Ecological Importance (SEI) designated as High or above in accordance with the site sensitivity verification and delineations.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Decommissioning Phase: ▪ Disturbance of foraging and breeding behaviours of birds due to noise, dust and lighting. **Note: The information presented below applies to Project 7 – Biesjesvlei EGI 1 only.** **Construction Phase:** ▪ Disturbance of foraging and breeding behaviours of birds due to noise, dust and lighting. ▪ Loss of habitat due to clearing, trenching, alteration and exclusion from previously accessible habitats. **Operational Phase:** ▪ Continued disturbance due to operational activities (use of vehicles, lights etc.). ▪ Loss of habitat due to altered and excluded habitats and threat of fire. ▪ Direct mortality from electrocution and collision with infrastructure (e.g. fences, overhead power lines). ▪ Attraction to the facility exacerbating potential impacts. **Decommissioning Phase:** ▪ Habitat loss reclamation from rehabilitation activities (*positive impact*). ▪ Continued disturbance due to decommissioning activities (use of vehicles, lights etc.). ▪ Removal of power lines to promote safe passage (lowering collision risk) through the site and avoiding attraction by birds perching and nesting (*positive impact*). **Negative Cumulative Impacts:** **Construction and Operational Phases:** ▪ Construction and Operational Phases: Habitat loss due to a regional saturation of renewable energy facilities. ▪ Operational Phase: Increased collision mortality due to higher regional densities of power lines.	▪ All habitat attractants should be eliminated so that avifaunal populations will not embed themselves within the infrastructure over time. This includes bird diverters, perch deterrents and the application of non-polarising white tape around and/or across panels to minimise reflection which can attract aquatic birds and insects (food) as panels mimic reflective surfaces of waterbodies. Retrofitting of perch diverters will only be applied if mortality thresholds are breached within the Project Area of Influence (PAOI) (as per bird monitoring in the EMPr). Retrofitting on panels with non-polarising white tape will only be applicable if mortality thresholds are breached (as per the bird monitoring in the EMPr) and the Lake Effect indeed acts as an impact. **Decommissioning Phase:** ▪ Decommissioning of panels must not commence during the peak wet season months of November, December, January, and February. ▪ Remove all infrastructure not originally present prior to the construction phase. ▪ Rehabilitate all areas disturbed immediately after decommissioning activities and removal of infrastructure. **Note: The mitigation measures below apply to the Biesjesvlei BESS 1 project only.** **Construction Phase:** ▪ Avoid avifaunal specific highly sensitive areas and their associated buffers, such as the local drainage lines, impoundments, smaller watercourses, pans and rocky koppies. Avoidance mitigation to be applied to the positioning of the main infrastructure and supporting infrastructure. *Note that the BESS has avoided the no-go areas identified by the avifauna specialists*. ▪ Roads must utilise or upgrade existing farm roads as far as possible. All roads and crossings must be engineered not to impede surface or subsurface flow in any way. ▪ For BESS infrastructure, commencement of construction should be restricted to the months of March, April, May, June, July, August, September, October (latest) to minimise destruction of the avifaunal habitats during their optimal conditions. Timing of any BESS construction to not commence in November, December, January and February in order to avoid breeding periods of species within the sensitive drainage lines, wetlands and the general region. **Operational Phase:** ▪ Buffers should be maintained around all habitats with a SEI designated as High or above in accordance with the site sensitivity verification and delineations.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		▪ In the event of increased rodent activity, non-harmful pest control measures should be applied to control population numbers and limit the attractiveness of the project area for foraging. ▪ Application of strict chemical control procedures as per the recommendations provided in the EMPr. **Decommissioning Phase:** ▪ 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. ▪ Minimise light pollution. ▪ Enforce a speed limit of 40 km/h on site. ▪ If necessary, apply dust-suppression measures (road wetting) to limit dust. **Note: The information presented below applies to Project 7 – Biesjesvlei EGI 1 only.** **Construction Phase:** ▪ 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. ▪ Minimise light pollution and fit external lighting with downward facing hoods. ▪ Enforce a speed limit of 40 km/h on site. ▪ Limit the areas cleared for construction purposes (e.g. laydown areas). ▪ Rehabilitate all areas disturbed immediately after construction. ▪ Prioritise existing roads for access routes, where possible. **Operational Phase:** ▪ 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. ▪ 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. ▪ 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

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		used to anchor infrastructure such as pylons, and/or new monopoles developed for the Biesjesvlei projects. ▪ 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. ▪ Avoid siting lines in areas where birds concentrate. ▪ 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. ▪ 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). ▪ Light reflecting markers / bird flight diverters are a requirement to avoid collision by nocturnal species. Such markers / diverters need to be closely spaced (<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. ▪ 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. ▪ 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. **Decommissioning Phase:** ▪ 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. ▪ Minimise light pollution and fit external lighting with downward-facing hoods. ▪ Enforce a speed limit of 40 km/h on site. ▪ If necessary, apply dust-suppression measures (road wetting) to limit dust. ▪ Remove all infrastructure (mainly pylons) not originally present prior to the construction phase. ▪ Rehabilitate all areas disturbed immediately after decommissioning activities and removal of infrastructure.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.5: Visual Impact Assessment	**Negative Direct Impacts:** **Note: The information presented below applies to Project 1 – Biesjesvlei PV1 only.** **Construction Phase:** ▪ 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. ▪ Potential visual effect of haul roads, access roads, stockpiles and construction camps in the visually exposed landscape. **Operational Phase:** ▪ Potential visual intrusion of solar arrays and related infrastructure on receptors including glint and glare. ▪ Potential visual impact of an industrial type of activity on the pastoral / rural character and sense of place of the area. **Decommissioning Phase:** ▪ Potential visual effect of any remaining structures, platforms and disused roads on the landscape. **Note: The information presented below applies to Project 4 – Biesjesvlei BESS 1 only.** **Construction Phase:** ▪ 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. ▪ Potential visual effect of haul roads, access roads, stockpiles and construction camps in the visually exposed landscape. **Operational Phase:** ▪ Potential visual intrusion of the BESS and related infrastructure on receptors. ▪ Potential visual impact of an industrial type of activity on the pastoral / rural character and sense of place of the area. **Decommissioning Phase:** ▪ Potential visual effect of any remaining structures, platforms and disused roads on the landscape.	**Note: The information presented below applies to Project 1 – Biesjesvlei PV1 only.** **Construction Phase:** ▪ Locate construction camps, batching plants and stockpiles in visually unobtrusive areas, away from public roads. ▪ Implement EMPr with ECO during construction. **Operational Phase:** ▪ Substation to be located in an unobtrusive low-lying area, away from public roads, where possible. ▪ Muted natural colours and non-reflective finishes to be used for structures generally. ▪ Internal access roads to be as narrow as possible, and existing roads or tracks used as far as possible. ▪ Outdoor/ security lighting to be fitted with reflectors to obscure the light source, and to minimise light spillage. ▪ Internal power lines (33 kV) to be located underground where possible. (In some cases, such as stream crossings, internal power lines may need to be above ground). ▪ Outdoor signage to be discrete and commercial / billboard signage avoided. **Decommissioning Phase:** ▪ Solar arrays and infrastructure to be removed and recycled. ▪ Access roads no longer required to be ripped and regraded. ▪ Exposed or disturbed areas to be revegetated to blend with the surroundings. **Note: The information presented below applies to Project 4 – Biesjesvlei BESS 1 only.** **Construction Phase:** ▪ Locate construction camps and stockpiles in visually unobtrusive areas, away from public roads. ▪ Implement EMPr with ECO during construction. **Operational Phase:** ▪ BESS to be located in an unobtrusive low-lying area, away from public roads, where possible. ▪ Muted natural colours and non-reflective finishes to be used for structures generally. ▪ Access roads and internal roads to be as narrow as possible, and existing roads or tracks used as far as possible.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Note: The information presented below applies to Project 7 – Biesjesvlei EGI 1 only. **Construction Phase:** ▪ 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. ▪ Potential visual effect of haul roads, access roads, stockpiles and construction camps in the visually exposed landscape. **Operational Phase:** ▪ Potential visual intrusion of the switching station and power line and related infrastructure on receptors. ▪ Potential visual impact of an industrial type of activity on the pastoral / rural character and sense of place of the area. **Decommissioning Phase:** ▪ Potential visual effect of any remaining structures, platforms and disused roads on the landscape. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ 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.	▪ Outdoor/ security lighting to be fitted with reflectors to obscure the light source, and to minimise light spillage. ▪ Outdoor signage to be discrete and commercial / billboard signage avoided. **Decommissioning Phase:** ▪ BESS facilities to be removed and/or recycled. ▪ Access roads no longer required to be ripped and regraded. ▪ Exposed or disturbed areas to be revegetated to blend with the surroundings. **Note: The information presented below applies to Project 7 – Biesjesvlei EGI 1 only.** **Construction Phase:** ▪ Locate construction camps and stockpiles in visually unobtrusive areas, away from public roads. ▪ Implement EMPr with ECO during construction. **Operational Phase:** ▪ EGI to be located along unobtrusive corridors away from public roads and farmsteads as far as practically possible. ▪ Access or service roads to be as narrow as possible, and existing roads or tracks used as far as possible. ▪ Use monopoles in preference to lattice pylons, where possible. ▪ Outdoor/ security lighting to be fitted with reflectors to obscure the light source, and to minimise light spillage. **Decommissioning Phase:** ▪ EGI facilities to be removed and/or recycled. ▪ Access roads no longer required to be ripped and regraded. ▪ Exposed or disturbed areas to be revegetated to blend with the surroundings.
Appendix E.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	**Negative Direct and Cumulative Impacts:** **Note: The information presented below only applies to Project 1 – Biesjesvlei PV1.** **Construction Phase:** ▪ Damage or destruction of archaeological materials. ▪ Damage or destruction of graves.	**Note: The mitigation measures below apply equally to the Biesjesvlei PV1, Biesjesvlei BESS 1 and Biesjesvlei EGI 1 projects, except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ Demarcate known heritage sites within 50 m of the project footprint as No-Go areas. ▪ Fence known graves with a wire farm fence and gate at least 5 m from all visible graves. ▪ Demarcate known graves within 50 m of the project footprint as No-Go areas.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	▪ Damage to built heritage resources. ▪ Intrusion of the facility and equipment into the landscape. **Operational Phase:** ▪ Intrusion of the facility into the landscape. **Decommissioning Phase:** ▪ Intrusion of the facility and equipment into the landscape. **Cumulative Impacts:** ▪ Impacts to archaeology, graves, buildings. ▪ Intrusion of the facility and equipment into the landscape. **Note: The information presented below only applies to Project 4 – Biesjesvlei BESS 1.** **Construction Phase:** ▪ Damage or destruction of archaeological materials. ▪ Damage or destruction of graves. ▪ Damage to built heritage resources. ▪ Intrusion of the BESS and equipment into the landscape. **Operational Phase:** ▪ Intrusion of the BESS into the landscape. **Decommissioning Phase:** ▪ Intrusion of the BESS and equipment into the landscape. **Cumulative Impacts:** ▪ Impacts to archaeology, graves, buildings. ▪ Intrusion of the BESS and equipment into the landscape. **Note: The information presented below only applies to Project 7 – Biesjesvlei EGI 1.** **Construction Phase:** ▪ Damage or destruction of archaeological materials.	▪ Report any chance finds to South African Heritage Resources Agency (SAHRA) and/or an archaeologist. In the case of graves, protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit. ▪ Demarcate buildings as no-go areas. ▪ Minimise the duration of the construction period. ▪ Minimise cut-and-fill and landscape scarring in general. ▪ Ensure effective rehabilitation of areas not needed during operation. **Operational Phase:** ▪ Paint buildings in earthy tones (Note: This applies to the PV and EGI project but is only recommended, if feasible, for the BESS project). ▪ Ensure that all maintenance vehicles stay within the authorised footprint. ▪ Make use of lighting mitigation measures such as motion sensors and downlighting. **Decommissioning Phase:** ▪ Minimise duration of decommissioning period ▪ Ensure effective rehabilitation of all affected areas.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	▪ Damage or destruction of graves. ▪ Damage to built heritage resources. ▪ Intrusion of power line and equipment into the landscape. **Operational Phase:** ▪ Intrusion of the power line into the landscape. **Decommissioning Phase:** ▪ Intrusion of the power line and equipment into the landscape. **Cumulative Impacts:** ▪ Impacts to archaeology, graves, buildings. ▪ Intrusion of the power line and equipment into the landscape.	
Appendix E.7: Palaeontology Site Sensitivity Verification Report	**Note: The information presented below applies equivalently to Projects 1 to 10 (i.e. Biesjesvlei PV1 to 3; Biesjesvlei BESS 1 to 3; Biesjesvlei EGI 1 to 3; and Biesjesvlei MTS and LILO).** ▪ The study area has been confirmed as low to very low palaeo-sensitivity. Provided that the Chance Fossil Finds Protocol is incorporated into the EMPrs 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 projects confirming that the SAHRA Development Applications Unit (DAU) has no objections to the proposed development.	**Note: The mitigation measure presented below applies equivalently to Projects 1 to 10 (i.e. Biesjesvlei PV1 to 3; Biesjesvlei BESS 1 to 3; Biesjesvlei EGI 1 to 3; and Biesjesvlei MTS and LILO).** ▪ The Chance Fossil Finds Protocol has been incorporated into the project EMPrs (Appendix J and Appendix O of this EIA Report).
Appendix E.8: Socio-Economic Assessment	**Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1 and Project 4 – Biesjesvlei BESS 1, unless where mentioned otherwise.** **Construction Phase:** **Direct Impacts:** ▪ Capital investment (CapEx) contributing to the national, regional and local economy (positive impact). ▪ Generation of employment, income and skills (positive impact).	**Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1 and Project 4 – Biesjesvlei BESS 1, unless where mentioned otherwise.** **Note from the CSIR: Several mitigation and enhancement measures have been identified in the assessment. The list below is only a summary of some of the recommendations.** **Positive Impacts – Enhancement Measures:**

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Indirect Impacts: ▪ Social disruption and change in social dynamics (negative impact). ▪ Reduced quality of life and increased risks due to construction near residences (negative impact). **Operational Phase:** **Direct Impacts:** ▪ Operational investment (OpEx) contributing to the national, regional and local economy (positive impact). ▪ Generation of employment, income and skills (positive impact). ▪ Increased community prosperity through contributions and income from the proposed projects (positive impact). **Indirect Impacts:** ▪ Increased power generation reducing the probability of load shedding (positive impact) (***Note: This impact is only applicable to the Biesjesvlei Solar PV project***). **Decommissioning Phase:** **Direct Impacts:** ▪ Reduced employment and funding (negative impact). **Cumulative impacts:** ▪ Construction Phase: Stimulation of economic and employment growth (positive impact). ▪ Operational Phase: Increased community prosperity through contributions and income from Independent Power Producers (IPPs) and operational spending (positive impact). ▪ Operational Phase: Increased power generation reducing the probability of load shedding (***Note: This impact is only applicable to the Biesjesvlei Solar PV project***) (positive impact).	**Construction Phase:** ▪ Source as many goods and services as far as possible from the local and regional economy (e.g. use local contractors and accommodation and equipment suppliers as far as possible and purchase perishable goods locally). ▪ Provide suitable training to service providers, where possible and practicable. ▪ Develop and implement a fair and transparent procurement policy. ▪ Provide training to staff and service providers on how to position themselves for other employment opportunities once construction ends. ▪ Consult with existing Independent Power Producer (IPP) projects that successfully procure from local Small, Micro and Medium Enterprises (SMMEs) to share learnings, where possible. ▪ Maximise use of local skills and resources through preferential employment of locals where practicable. ▪ Develop, communicate and implement a fair and transparent labour and recruitment policy. ▪ Ensure diversity and gender equality in recruitment, as far as possible. **Operational Phase:** ▪ Source as many goods and services as possible from the local and regional economy (e.g. use local contractors (where needed during the operational phase) and accommodation and equipment suppliers as far as possible and purchase perishable goods locally). ▪ Provide suitable training to staff and service providers, where possible and practicable. ▪ Develop and implement a fair and transparent procurement policy. ▪ Provide ancillary training to workers on maximising the use of income and training to further future economic prospects, potentially through projects initiated as part of the social upliftment programme ▪ Maximise use of local skills and resources through preferential employment of locals where practicable. ▪ Develop and implement a fair and transparent labour and recruitment policy. ▪ Ensure diversity and gender equality in recruitment, as far as possible. ▪ Regularly engage with community stakeholders to develop meaningful strategies for community development. ▪ Define vision for economic development in consultation with communities. ▪ Ensure that funding requirements for each project are considered into the future so that projects are viable and sustainable.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		▪ Set clear goals for each project and phase out funding once these goals are achieved. ▪ Consider auditing projects for several years after funding has ceased to ensure their benefits are sustained. **Negative Impacts – Mitigation Measures:** **Construction Phase:** ▪ Liaise with nearby residents before and during construction to inform them of construction status and discuss safety management measures to reduce security risks. ▪ Consider supporting projects that improve local services and infrastructure and/or deal with social problems or conflicts through the social upliftment programme, if the need arises. ▪ Maintain a visible security presence on site. **Decommissioning Phase:** ▪ Clearly communicate project duration to staff and communities. ▪ Prolong the operational life of the project as much as possible. ▪ Assist with recommendations and referrals where possible. ▪ Assist with the sustainable administration of funds throughout the project lifetime.
Appendix E.9: Traffic Impact Assessment	**Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1 and Project 4 – Biesjesvlei BESS 1, unless where mentioned otherwise.** **Direct Negative Impacts** **Construction and Decommissioning Phases:** ▪ Potential congestion and delays on the surrounding road network. ▪ Potential impact on traffic safety and increase in accidents with other vehicles or animals. ▪ Potential change in the quality of the surface condition of the roads. ▪ Potential noise and dust pollution. **Operational Phase:** ▪ The traffic generated during the operational phase are mainly related to the staff that will be transported to and from the sites and are not anticipated to have a significant traffic impact on the surrounding road network.	**Note: The information presented below applies equivalently to Project 1 – Biesjesvlei PV1 and Project 4 – Biesjesvlei BESS 1, unless where mentioned otherwise.** **Construction and Decommissioning Phases:** ▪ Stagger delivery trips and schedule trips, including staff trips outside of peak hours where possible. ▪ Implement speed control by means of a stop and go system and speed limit road signage within the construction and decommissioning site. ▪ Ensure all vehicles are roadworthy, visible, adequately marked, and operated by an appropriately licenced operator. ▪ Regular maintenance of the existing external gravel access roads that are used by and impacted on by the proposed projects (i.e. the relevant sections of the S1262 and S119 under the authority of the Free State Government) by the contractor during the construction phase. ▪ Ensure private access roads (i.e. existing internal farm roads leading off the S119) that are used by and impacted on by the proposed developments are restored to original pre-construction road condition or upgraded to suitable standards as specified by the

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	Cumulative Negative Impacts **Construction and Decommissioning Phases:** ▪ Potential congestion and delays on the surrounding road network. ▪ Potential impact on traffic safety and increase in accidents with other vehicles or animals. ▪ Potential change in the quality of the surface condition of the roads. ▪ Potential noise and dust pollution.	civil engineer and regularly maintained during all phases of the projects, especially during the construction and decommissioning phases. ▪ Implement dust control on gravel roads within the construction and decommissioning site.
Appendix E.10: Geohydrology Assessment	**Note: The information presented below applies to Project 1 – Biesjesvlei PV1.** **Direct Negative Impacts:** **Construction Phase:** ▪ Potential lowering of the groundwater level from construction requirements. ▪ Potential impact on groundwater quality as a result of accidental oil spillages or fuel leakages. ▪ Potential impact on groundwater quality as a result of foundation construction occurring below the water table. **Operational Phase:** ▪ Potential lowering of the groundwater levels as a result of over-abstraction due to operational requirements. ▪ Potential impact on groundwater quality as a result of using cleaning agents for solar panel cleaning. **Decommissioning Phase:** ▪ Potential impact on groundwater quality as a result of accidental oil spillages or fuel leakages. ▪ Potential lowering of the groundwater levels as a result of over-abstraction due to decommissioning requirements. **Note: The information presented below applies to Project 4 – Biesjesvlei BESS 1.** **Construction Phase:** ▪ Potential lowering of the groundwater levels as a result of over-abstraction due to construction requirements.	**Note: The mitigation measures presented below apply equivalently to Project 1 – Biesjesvlei PV1 and Project 4 – Biesjesvlei BESS 1, except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction and Decommissioning Phases:** ▪ Adhere to the borehole's safe yield and to monitor water levels and flow. ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a Step Test, Constant Discharge Test and recovery monitoring. ▪ Vehicles must be regularly serviced and maintained to check and ensure there are no leakages. ▪ Diesel fuel storage tanks, if required, should be above ground on an impermeable surface in a bunded area. ▪ Vehicles and equipment should also be refuelled on an impermeable surface. A designated area should be established at the construction site camp for this purpose, if off-site refuelling is not possible. If spillages occur, they should be contained and removed as rapidly as possible, with correct disposal procedures of the spilled material, and reported. ▪ Barriers and liner to be successfully implemented to prevent chemical contamination of underground water during foundation construction. It is recommended that this is coupled with a groundwater monitoring program starting prior to the construction phase. **Operational Phase:** ▪ Adhere to the borehole's safe yield, monitoring and yield testing as per the construction phase. ▪ **Biesjesvlei PV1**: Use environmentally safe cleaning agents that breakdown naturally and do not cause adverse effects.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
	▪ Potential impact on groundwater quality as a result of accidental oil spillages or fuel leakages. ▪ Potential impact on groundwater quality as a result of foundation construction occurring below the water table. **Operational Phase:** ▪ Potential lowering of the groundwater levels as a result of over-abstraction due to operational requirements. ▪ Potential impact on groundwater quality as a result of potential spillage associated with the BESS. **Decommissioning Phase:** ▪ Potential impact on groundwater quality as a result of accidental oil spillages or fuel leakages. ▪ Potential lowering of the groundwater levels as a result of over-abstraction due to decommissioning requirements. **Cumulative Negative Impacts:** ▪ Potential lowering of the groundwater levels as a result of abstraction during the construction, operational and decommissioning phases for all three Biesjesvlei PV facilities and three BESS facilities. ▪ Potential impact on groundwater quality as a result of accidental oil spillages or fuel leakages from the construction and the decommissioning phases for all three Biesjesvlei PV facilities, and three BESS facilities. ▪ Potential impact on groundwater quality as a result of foundation construction occurring below the water table from the construction phase for all three Biesjesvlei PV facilities, and three BESS facilities. ▪ Potential impact on groundwater quality as a result of using cleaning agents for solar panel cleaning during the operational phase for all three Biesjesvlei PV facilities. ▪ Potential impact on groundwater quality as a result of potential spillage associated with the BESS.	▪ **Biesjesvlei BESS 1**: o Any waste products produced from the BESS should be removed and disposed of appropriately. o Wastewater produced by fire hydrants should not be allowed to runoff into the environment. o It is recommended that all BESS are placed a minimum of 50m from any borehole. o Ensure that the BESS is assembled in line with relevant product specifications and with the necessary measures to prevent potential contamination of the surrounding environment.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.11: Geotechnical Letter of Professional Opinion	**Note: The information presented below applies equivalently to Projects 1 to 10 (i.e. Biesjesvlei PV1 to 3; Biesjesvlei BESS 1 to 3; Biesjesvlei EGI 1 to 3; and Biesjesvlei MTS and LILO).** **Direct Negative Impacts:** **Construction Phase:** ▪ Displacement of geologic materials. **Construction, Operational and Decommissioning Phases**: ▪ Contamination of subsoils and loss of topsoil. **Operational and Decommissioning Phases**: ▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.	**Note: The information presented below applies equivalently to Projects 1 to 10 (i.e. Biesjesvlei PV1 to 3; Biesjesvlei BESS 1 to 3; Biesjesvlei EGI 1 to 3; and Biesjesvlei MTS and LILO), unless where a specific project is mentioned.** **Construction Phase:** ▪ Development of a stormwater management plan by a qualified professional before construction is recommended. ▪ **Biesjesvlei PV Projects**: Installation of suitable systems to redirect water away from areas designated for solar infrastructure. Ongoing monitoring of these systems during the initial construction phase to address erosion or sedimentation promptly. *This is applicable to the PV projects specifically.* ▪ Immediate rehabilitation post-construction, optimising the conditions for vegetation regrowth. ▪ Implementation of safeguards during refuelling to protect soil from spillages, ensuring swift and proper disposal if incidents occur. **Operational Phase:** ▪ Similar to the construction phase, stormwater management planning by a qualified professional will be required. ▪ Diversion of water away from road layers and erected structures, akin to the construction phase. ▪ Replication of mitigation measures for spillages/leakages from the construction phase. ▪ **Biesjesvlei BESS Projects**: Proper designed structures and suitable containment to be implemented at the BESS to mitigate potential contamination of the surrounding environment, as recommended by the specialist undertaking the High Level Safety, Health and Environment (SHE) Risk Assessment for the BESS. *Note: This is applicable to the BESS projects specifically.* ▪ **Biesjesvlei PV Projects**: Close monitoring of solar panel maintenance, avoiding hazardous chemical use during cleaning. *Note: This is applicable to the PV projects specifically.* **Decommissioning Phase:** ▪ Restoration of natural topography and land rehabilitation to near-natural state, including removal of foundations and hard surfaces, followed by proper backfilling. ▪ Use of locally sourced materials for reinstating and backfilling to ensure uniformity. ▪ Implementation of standard environmental management procedures for infrastructure. ▪ Stringent measures to prevent pollution and contamination of the riparian zone, including well-maintained equipment and safeguards during refuelling operations.

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
Appendix E.12: Battery Energy Storage System High Level Safety, Health and Environment (SHE) Risk Assessment	**Note: The information presented below only applies to Project 4 – Biesjesvlei BESS 1.** Various risks were identified in terms of safety, health and the environment due to the proposed BESS. The BESS High Level Safety, Health and Environment Risk Assessment identified risks, hazards, and consequences, such as, but not limited to: ▪ Human Health - chronic exposure to toxic chemical or biological agents. Causes: Construction materials such as cement, paints, solvents, welding fumes, truck fumes etc. Consequences - Employee / contractor illness. ▪ Human Health - exposure to noise. Causes: Drilling, piling, generators, air compressors. Consequences - Adverse impact on hearing of workers. Possible nuisance factor in nearby areas. ▪ Human and Equipment Safety - exposure to fire radiation. Causes: Involvement in an external fire. Fire involving fuels used in construction vehicles or vehicles themselves (e.g., tyre fire). Fire due to uncontrolled welding or other hot-work. Consequences - Injuries due to radiation especially amongst first responders and bystanders. Fatalities unlikely from the heat radiation as not highly flammable nor massive fire. ▪ Human and Equipment Safety - exposure to explosion over pressures. With solid state lithium containers, flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Consequences - Potential fatalities amongst first responders. Damage to container, transport truck or other nearby items, e.g., other container in the port. ▪ Human and Equipment Safety - exposure to explosion over pressures. Cause 1 - Transformer shorting / overheating / explosion. Cause 2 - Flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Lithium Cobalt Oxide generates O_2 during decomposition – escalation. Consequences - Potential fatalities amongst first responders. Damage to container or other nearby items, e.g., other container.	**Note: The information presented below only applies to Project 4 – Biesjesvlei BESS 1.** ▪ There are numerous different battery technologies but using one consistent battery technology system for the BESS installations associated with all the Biesjesvlei developments in the Smithfield area would allow for ease of training, maintenance, emergency response and could significantly reduce risks. ▪ Where reasonably practicable, “state-of-the-art” battery technology should be used with all the necessary protective features, e.g., draining of cells during shutdown and standby-mode, full Battery Management System (BMS) with deviation monitoring and trips, leak detection systems. ▪ Ensure that the technical and system suggestions for managing and reducing risks, as specified in the assessment, specifically in terms of preventative and mitigative measures are included in the design. ▪ The overall design should be subject to a full Hazard and Operability Study (HAZOP) prior to finalisation of the design. ▪ Prior to importing any solid-state battery containers into the country, the contractor should ensure that: o An Emergency Response Plan is in place that would be applicable for the full route from the ship to the site. This plan would include details of the most appropriate emergency response to fires both while the units are in transit and once they are installed and operating. o An End-of-Life plan is in place for the handling, repurposing or disposal of dysfunctional, severely damaged batteries, modules and containers. ▪ The site layout and spacing between lithium solid-state containers should be such that it mitigates the risk of a fire or explosion event spreading from one container to another. ▪ In order to limit the possibility of domino failures from the BESS onto transformers and to limit direct impacts of any fire or explosion on the substation, the BESS should be separated from the substation by at least 20 m, or greater if specified in local or International Standards. ▪ In order to limit on-site risks, any office and maintenance buildings should be located at least 20 m, although preferably 50 m, from the BESS. ▪ From a high-level SHE Risk Assessment perspective, where there is a choice of location that is further from public roads, water courses or isolated farmhouses/occupied developments, this would be preferred. Solid-state systems may experience fires that may result in toxic smoke and loss of containment of liquids or the use of large amounts of fire water which could be contaminated. One would not want

Specialist Assessment undertaken	Key Impacts Identified	Recommended Mitigation Measures
		these liquids to enter water courses nor the smoke to pass close to houses / public traffic. The current chosen location of the BESS meets these separation requirements, and the relevant specialists such as aquatic and geohydrology have provided inputs on setback distances. It is noted that there are no aquatic and geohydrological features in the BESS area. ▪ Finally, it is suggested once the BESS technology has been chosen and more details of the final design are available, the necessary updated Risk Assessments should be in place (prior to commencement, after EA and other necessary approvals are granted (should such be granted)).

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 projects:

- **Biesjesvlei PV1**: 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 for Terrestrial Biodiversity during the construction and operational phases; Aquatic Biodiversity during the construction and decommissioning phases, and Avifauna during the operational phase.** With the implementation of enhancement measures, this project is considered to have an **overall Moderate to Low positive socio-economic impact**. Refer to Table H.

- **Biesjesvlei BESS 1**: 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 for Terrestrial Biodiversity during the construction phase; and Avifauna during the operational phase.** With the implementation of enhancement measures, this project is considered to have an **overall Moderate to Very Low positive socio-economic impact**. Refer to Table I.

- **Biesjesvlei EGI 1**: With the implementation of mitigation and enhancement measures, this project is considered to have an **overall Low to Very Low negative environmental impact, with some moderate negative environmental impacts Avifauna during operations.** Refer to Table J.

Based on Table K, 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**. Socio-Economic cumulative impacts are rated as **Moderate** positive with the implementation of enhancement measures for the construction and operational phases.

Table H. Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative and Positive Impacts for Biesjesvlei PV1

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
DIRECT NEGATIVE IMPACTS						
Agriculture and Soils	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Moderate	Low	Moderate	Low	Low	
Aquatic Biodiversity	Low	Moderate	Low		Low	Moderate

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
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	
Socio-Economic	Low	Very Low	Not identified		Low	
Traffic	Low	Very Low	Insignificant		Low	Very Low
Geohydrology	Low	Very Low	Low	Very Low	Low	Very Low
Geotechnical	Low	Very Low	Low	Very Low	Low	Very Low
DIRECT POSITIVE IMPACTS						
Socio-Economic	Moderate		Low	Moderate	Insignificant and/or not identified and/or not applicable	
Avifauna	Not identified		Not identified		Moderate	

Table I. Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative and Positive Impacts for Biesjesvlei BESS 1

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase
DIRECT NEGATIVE IMPACTS					
Agriculture and Soils	Low		Low		Low
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Moderate	Low	Low		Low
Aquatic Biodiversity	Low		Low		Low
Avifauna	Low		Moderate	Low	Low
Visual	Low		Low		Very Low
Heritage (Archaeology and Cultural Landscape)	Very Low		Very Low		Very 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
Socio-Economic	Very Low		Not identified		Low

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
Traffic	Low	Very Low	Insignificant		Low	Very Low
Geohydrology	Very Low		Very Low		Very Low	
Geotechnical	Low	Very Low	Low	Very Low	Low	Very Low
DIRECT POSITIVE IMPACTS						
Socio-Economic	Low	Moderate	Very Low	Moderate	Insignificant and/or not identified and/or not applicable	

Table J. Overall Impact Significance with the Implementation of Mitigation Measures for Direct Negative and Positive Impacts for Biesjesvlei EGI 1

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
DIRECT NEGATIVE IMPACTS						
Agriculture and Soils	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Low	Very Low	Low		Low	Very Low
Aquatic Biodiversity	Low		Low		Low	
Avifauna	Low		Moderate	Low	Low	
Visual	Low		Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Very Low		Very Low		Very 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
DIRECT POSITIVE IMPACTS						
Avifauna	Not identified		Not identified		Moderate	High

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

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
CUMULATIVE NEGATIVE IMPACTS						
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	Very Low	Low	Very Low	Low	Very 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	
Traffic	Low	Very Low	Insignificant		Low	Very Low
Geohydrology	Low	Very Low	Low	Very Low	Low	Very Low
CUMULATIVE POSITIVE IMPACTS						
Socio-Economic	Moderate		Moderate		Not identified	

OVERALL ENVIRONMENTAL IMPACT ASSESSMENT AND REASONED OPINION FROM THE EAP

Note: The information in this section equally applies to Project 1 (Biesjesvlei PV1), Project 4 (Biesjesvlei BESS 1) and Project 7 (Biesjesvlei EGI 1), unless where mentioned otherwise.

The information presented above contributes to this overall environmental impact statement and reasoned opinion from the EAP as to whether the proposed projects 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 projects can proceed and should be authorised by the DFFE, the proposed projects are considered to have an **overall Moderate to Very Low negative environmental impact, and an overall Moderate to Very Low positive socio-economic impact** (with the implementation of respective mitigation and enhancement measures). The proposed projects are considered to have an **overall Moderate to Very Low negative cumulative environmental impact, and an overall Moderate positive cumulative socio-economic impact** (with the implementation of respective mitigation and enhancement measures).

The proposed projects 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 projects 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 projects 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 EMPrs in Appendix J to Appendix O of this EIA Report).

The outcomes of these projects therefore succeed in meeting the environmental management objectives of protecting the ecologically sensitive areas and supporting sustainable development and the use of natural resources, whilst promoting justifiable socio-economic development in the towns nearest to the project site. The findings of this EIA show that all natural resources will be used in a sustainable manner (i.e., this is a renewable energy, BESS and EGI 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 projects 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 projects outweigh the costs and that the projects 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 projects 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 EAs (should they be granted) be **valid for a period of 10 years**.
In addition, it is recommended that the EMPrs compiled as part of this EIA Process, included in Appendix J to Appendix O of this EIA Report, be approved concurrently in the EAs (should they be granted). A detailed **final** layout of the PV Facility, BESS and EGI was identified during the EIA Phase, and included in Chapter 20 of the Final EIA Report, as well as Appendix D and the EMPrs.