



DRAFT AMENDMENT ASSESSMENT REPORT

for

AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION FOR HOTAZEL SOLAR TO INCLUDE BATTERY ENERGY STORAGE SYSTEM

On

Remainder Farm York A 279 and Grid connection on
Remainder of Farm 280 and Portion 11 of Farm York A 279

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as
amended) & 2014 Environmental Impact Regulations

Prepared for Applicant: ABO Wind Hotazel PV (Pty) Ltd.

Author of Report: Dale Holder

Author Email: dale@cape-eaprac.co.za

Report Reference: JMO543/14

Department Reference: 14/12/16/3/3/2/1086 (2022-09-0036)

Cape EAPrac

Cape Environmental Assessment Practitioners


Tel: +27 44 874 0365 PO Box 2070, George 6530
Fax: +27 44 874 0432 17 Progress Street, George

www.cape-eaprac.co.za



DOCUMENT TRACKING

APPROVAL FOR RELEASE

NAME	TITLE	SIGNATURE
Dale Holder	Senior Environmental Practitioner	

DISTRIBUTION

DISTRIBUTION LIST
Department of Environment, Forestry and Fisheries
ABO Wind Hotazel PV (Pty) Ltd
Registered and Potential Interested and Affected Parties

APPOINTED ENVIRONMENTAL ASSESSMENT PRACTITIONER:

Cape EAPrac Environmental Assessment Practitioners

PO Box 2070

George

6530

Tel: 044-874 0365

Fax: 044-874 0432

Report written & compiled by: Louise Mari van Zyl with assistance from Dale Holder (Ndip Nature Conservation), who has over 18 years' experience as an environmental practitioner.

Registrations: Director Louise-Mari van Zyl (MA Geography & Environmental Science [US]; Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners of South Africa, EAPSA, Registration Number 2019/1444. Ms van Zyl has over nineteen years' experience as an environmental practitioner.

PURPOSE OF THIS REPORT:

I&AP Review and Comment.

APPLICANT:

ABO Wind Hotazel PV (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

JMO543/14

DEPARTMENT REFERENCE:

14/12/16/3/3/2/837

Draft Amendment Assessment Report

in terms of the

National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended) & Environmental Impact Regulations 2014 (as amended)

Hotazel Solar

Remainder Farm York A 279 and Grid connection on Remainder of Farm 280 and Portion 11 of Farm York A 279.

Submitted for:

Stakeholder Review & Comment

This report is the property of the Author/Company, who may publish it, in whole, provided that:

- Written approval is obtained from the Author and that *Cape EAPrac* is acknowledged in the publication;
- *Cape EAPrac* is indemnified against any claim for damages that may result from any publication of specifications, recommendations or statements that is not administered or controlled by *Cape EAPrac*;
- The contents of this report, including specialist/consultant reports, may not be used for purposes of sale or publicity or advertisement without the prior written approval of *Cape EAPrac*;
- *Cape EAPrac* accepts no responsibility by the Applicant/Client for failure to follow or comply with the recommended programme, specifications or recommendations contained in this report;
- *Cape EAPrac* accepts no responsibility for deviation or non-compliance of any specifications or recommendations made by specialists or consultants whose input/reports are used to inform this report; and
- All figures, plates and diagrams are copyrighted and may not be reproduced by any means, in any form, in part or whole without prior written approval from *Cape EAPrac*.

Report Issued by:

Cape Environmental Assessment Practitioners

Tel: 044 874 0365 PO Box 2070

Fax: 044 874 0432 17 Progress Street, George 6530

Web: www.cape-eaprac.co.za

REPORT DETAILS

Title:	Draft Amendment Assessment Report for Hotazel Solar.
Purpose of this report:	<p>The purpose of this amendment assessment report is to provide details on the proposed amendments to the EA and to assess the impacts associated with these amendments on the receiving environment.</p> <p><u>The Draft Amendment Assessment Report is available to all registered and potential interested and affected parties for a 30 day review and comment period.</u></p> <p>All comments received during this comment period will be incorporated into a Final Amendment Assessment report that will be submitted to the DEFF for decision making.</p>
Prepared for:	ABO Wind Hotazel PV (Pty) Ltd
Published by:	Cape Environmental Assessment Practitioners (Pty) Ltd. (Cape EAPrac)
Authors:	Ms Louise-Mari van Zyl and Mr Dale Holder
Cape EAPrac Ref:	JMO543/14
DEA Case officer & Ref. No:	14/12/16/3/3/2/837 (2022-09-0036) Ms Mathlodi Mogorosi
To be cited as:	<i>Cape EAPrac</i> , 2020 Draft Amendment Assessment Report for the proposed amendment of the Environmental Authorisation for Hotazel Solar to include a Battery Energy Storage System. Report Reference: JMO543/14. George.

DFFE COMMENT ON AMENDMENT ASSESSMENT REPORT

This section will be updated upon receipt of comment from the competent authority.

ORDER OF REPORT

Draft Amendment Assessment Report – Main Report

Appendix A	:	Location, Topographical Plans (Cape EAPrac, 2020)
Appendix B	:	Biodiversity Overlays (Cape EAPrac, 2020)
Appendix D	:	Proposed Solar Facility Layout Plans incorporating the BESS (ABO Wind Hotazel PV, 2022)
Appendix E	:	Specialist Statements and Technical Reports
Appendix F	:	Public Participation Process
Annexure F1	:	I&AP Register
Annexure F2	:	Comments and Response Report (to be included in final amendment assessment report)
Annexure F3	:	Copy of Advert and Site Notice (to be included in the final amendment assessment report)
Annexure F4	:	Draft Amendment Assessment Report Notifications (to be included in final amendment assessment report)
Annexure F5	:	Draft Amendment Assessment Report Comments and Responses (to be included in final amendment assessment report)
Annexure G	:	BESS Risk Assessment
Appendix H	:	EMPr Addendum for BESS
Appendix I	:	Application for the amendment of the EA.
Appendix J	:	Screening Tool Report

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Proposed Amendments.....	1
1.2	Reasons for Proposed Amendments.....	5
1.2.1	Inclusion of BESS of up to 5ha within the authorised footprint	5
1.2.2	Update of contact details of the Holder of the Environmental Authorisation.	6
1.2.3	Extension of EA validity period.....	6
1.3	Recommendation of this Assessment Report	7
2.	OVERVIEW OF THE ACTIVITIES PROPOSED AS PART OF THE AMENDMENT TO THE EA.....	7
3.	PROJECT NEED AND DESIRABILITY	7
3.1	Site Selection Process	8
3.2	Project Programme And Timelines	8
4.	LEGISLATIVE AND POLICY FRAMEWORK	8
5.	SITE DESCRIPTION AND ATTRIBUTES.....	9
6.	ASSESSMENT OF IMPACTS ASSOCIATED WITH THE PROPOSED AMENDMENTS	11
6.1	Ecological Impacts	12
6.1.1	Change in Impact Due to the Proposed Inclusion of the BESS	12
6.1.2	Potential for Novel Impacts Associated with the BESS.....	12
6.1.3	Additional Mitigation Measures	12
6.2	Agricultural Impacts	12
6.3	Heritage Impacts	13
6.4	Visual Impacts.....	13
6.5	Social Impacts.....	14
6.1	Freshwater Impacts	14
6.2	Cumulative Impact Assessment.....	14
6.3	Impact Summary	14
6.4	Impact Statement.....	16
7.	ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENTS.....	16

8.	MANAGEMENT AND MITIGATION MEASURES	17
9.	PUBLIC PARTICIPATION PROCESS	21
10.	CONCLUSION AND RECOMMENDATIONS	21
11.	ABBREVIATIONS	23
12.	REFERENCES	24

FIGURES

Figure 1: Showing the proposed location of the BESS within the authorised footprint of the facility.	6
Figure 2: Location of the proposed PV Facility.....	10
Figure 3: Broad vegetation type associated with the project.....	11

TABLES

Table 1: Proposed amendments to the Environmental Authorisation for Hotazel Solar.....	1
Table 2: Preliminary implementation schedule.....	8
Table 3: Legislation applicable to Hotazel Solar including any additional considerations applicable to the amendment of the EA to include the BESS.	8
Table 5: Comparative summary of the post mitigation significance of impacts associated with Hotazel Solar as authorised and those associated with the addition of the BESS.	14
Table 6: Advantages and Disadvantages of the proposed amendments.	16
Table 7: BESS risk assessment detailing additional mitigation measures required prior to commencement of construction.....	17

DRAFT AMENDMENT ASSESMENT REPORT

1 INTRODUCTION

Cape EAPrac has been appointed by ABO Wind Hotazel PV (Pty) Ltd, hereafter referred to as the Applicant, as the independent Environmental Assessment Practitioner (EAP), to facilitate an application for an amendment of the project's Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act 107 of 1998), for the authorised 'Hotazel Solar' development near Hotazel in the Northern Cape Province of South Africa.

The total authorised generation capacity of Hotazel Solar 1 is 100 Megawatts (MW_{AC}). The applicant intends amending the EA to:

1. Update the contact details of the Holder of the Authorisation.
2. Extension of the validity period of the EA
3. Provide for a Battery Energy Storage System (BESS) of up to 5ha within the authorised footprint of the facility.

Items 1 and 2 above are of an administrative nature only and will not result in any environmental impacts. The purpose of this **Amendment Assessment Report** is to describe the environment to be affected by the proposed BESS (item 3 above) and to identify and assess any resulting impacts that may result from the addition of BESS on 5ha within the authorised footprint. In compliance with regulatory requirements, this report includes:

1. An assessment relating to the impacts of the proposed amendments;
2. The advantages and disadvantages associated with the proposed amendments;
3. Measures to ensure avoidance, management and mitigation of impacts associated with the proposed amendment; and
4. Revised EMPr (including a BESS risk assessment)

The Draft Amendment Assessment Report along with all the the supplementary appendices is herewith made available to all registered and potential Interested and Affected Parties (I&APs) for a 30 day comment period.

All comments received on the Draft Amendment Assessment Report will be considered, addressed and incorporated into a Final Amendment Assessment Report to be submitted to the DFFE for consideration and decision making.

1.1 PROPOSED AMENDMENTS

The applicant wishes to amend the EA to include a BESS of up to 5ha within the authorised footprint of the Facility. Other aspects included in this application for amendment are:

1. Updating the contact details of the holder of the EA
2. Extending the validity period of the EA;

In order to affect these, the following amendments to the Environmental Authorisation will be required.

Table 1: Proposed amendments to the Environmental Authorisation for Hotazel Solar.

The applicant is proposing the following amendments to the EA:

1. Addition of a Battery Energy Storage System of up to 5ha within the authorised footprint of the facility,
2. Updating of contact details of the holder of the EA,
3. Extending the validity period of the EA.

In order accommodate these changes, the following amendments to the EA are required.

AMENDMENT 1

Page 2 of the EA as amended, reflects the contact details of the holder of the Environmental Authorisation as follows:

Mr. Robert Wagener
 ABO Wind Hotazel PV (Pty) Ltd
 Unit B1 Mayfair Square, Century Way
 Century City
WESTERN CAPE
 7441

Tel: (021) 003 9181
 Cell: (064) 030 3633
 E-mail: robert.wagener@abo-wind.com.

This should be amended to:

Ms Zandri Hill
 ABO Wind Hotazel PV (Pty) Ltd
 Unit B1 Mayfair Square, Century Way
 Century City
WESTERN CAPE
 7441
 Tel: (021) 276 3620
 Cell: (076) 104 1372
 E-mail: Cape-town@abo-wind.com

AMENDMENT 2

Condition 7 on page 6 of the EA states:

7. This activity must commence within a period of five (05) years from the date of issue of this Environmental Authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for Environmental Authorisation must be made in order for the activity to be undertaken.

This should be amended to:

6. This activity must commence within a period of ten (ten) years from the date of issue of this Environmental Authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for Environmental Authorisation must be made in order for the activity to be undertaken.

AMENDMENT 3

Page 5 of the EA as amended includes a table outlining the technical details of the preferred alternative as follows (it is important to note that the EA Amendment 14/12/16/3/3/2/1086/AM2 of 14 December 2020 updated this technical table)

Component	Description/ Dimensions
Location of the site	Approximately 3km South East of Hotazel
PV Panel area	Maximum of 245ha with a total project footprint of approximately 270ha
Site access	Access to the site will be at one of the existing access points from the R31
Export capacity	100MW
Proposed technology	PV with fixed, single or double axis tracking technology
Height of installed panels from ground level	PV Structures not more than 4m
Width and length of internal roads	Main access road - width: \pm 8m, length: \pm 1 km Internal access roads – width: \pm 5m, length: \pm 20 km.

The following should be added to this table:

Battery Energy Storage System	Footprint up to 5 hectares.
-------------------------------	-----------------------------

AMENDMENT 4

Page 5 of the EA Amendment 14/12/16/3/3/2/1086/AM2 of 14 December 2020 included the following diagram depicting the preferred layout.

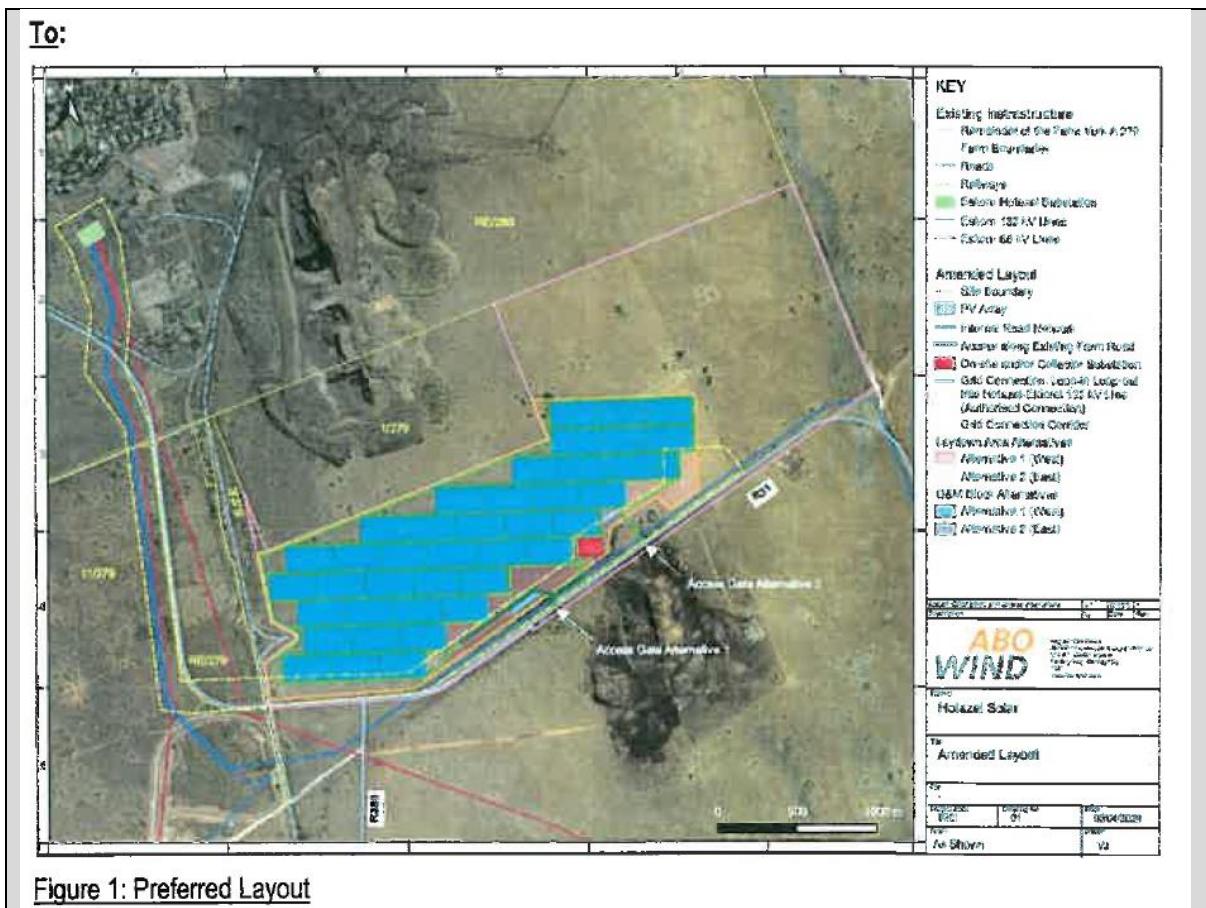
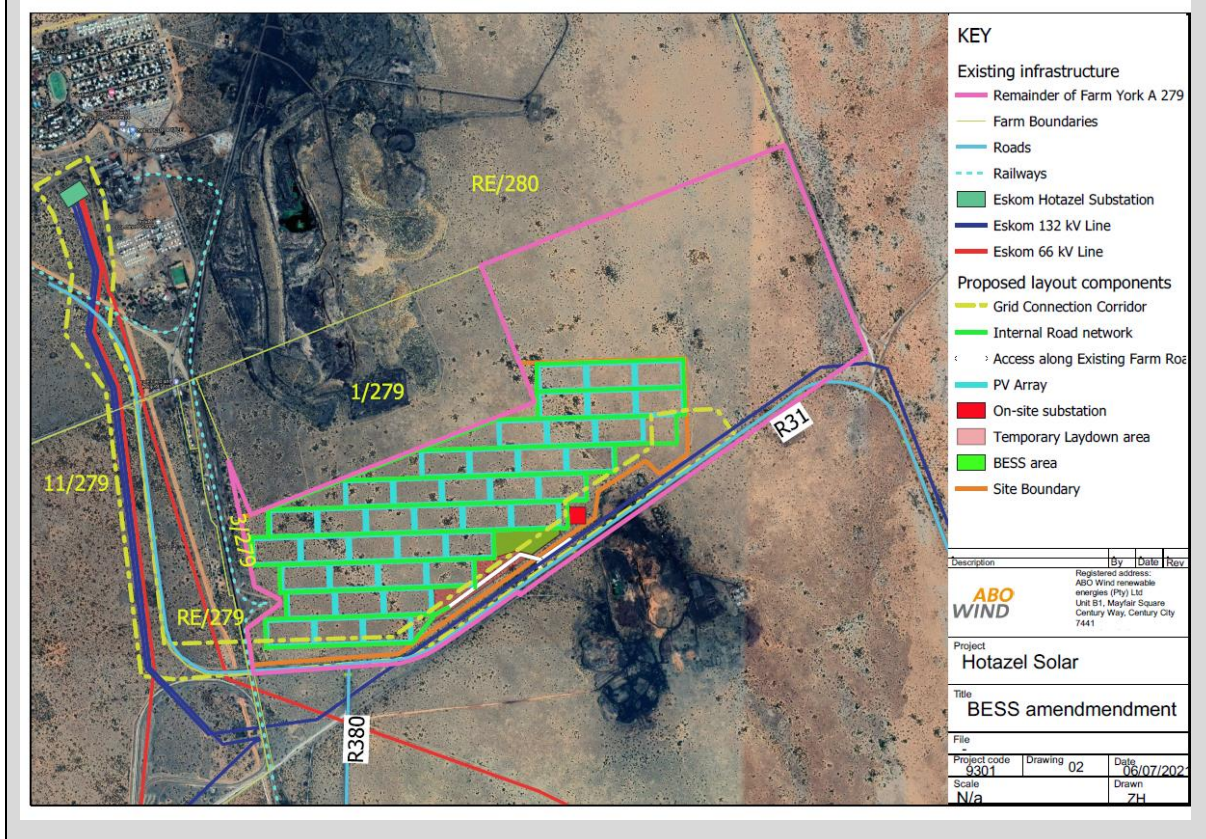


Figure 1: Preferred Layout

This layout plan should be updated to the plan attached in Appendix 8 of this Application as per below:



1.2 REASONS FOR PROPOSED AMENDMENTS

The proposed amendments include 3 main changes; namely:

1. Inclusion of BESS of up to 5ha within the authorised footprint;
2. Updating the contact details of the Holder of the EA; and
3. Extension of validity period of the EA.

The reasons for applying for these amendments are discussed separately below.

1.2.1 Inclusion of BESS of up to 5ha within the authorised footprint

Please refer to the BESS Technical motivation report attached in Appendix E for the full details regarding the BESS within the authorised project footprint from which the following is summarised.

Amendments 3 and 4 propose the inclusion of a battery energy storage within the Authorised footprint of the development.

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

The Integrated Resource Plan (IRP 2019) sets the direction for the energy sector, with a shift away from coal, increased adoption of renewables and gas, and an end to the expansion of nuclear power. One of the main challenges faced by Eskom is managing and balancing electricity demand supply. While renewable resources can now achieve lower costs than fossil fuels, photovoltaic (PV) arrays have variable electricity production, since they rely on energy inputs that cannot be controlled, particularly at peak consumption periods.

Cost reductions of energy storage technologies and the wider deployment of battery, particularly lithium-type installations globally, have stimulated interest in combining renewable energy generation with energy storage to provide dispatchable energy (energy on demand) and reliable capacity.

Technology

Unlike conventional energy storage facilities such as pumped hydro, battery storage has the advantage of being flexible in terms of site location and sizing. They can be easily incorporated into and in close proximity to a solar facility and can be scaled and designed to meet specific needs.

Different battery storage technologies, such as lithium-ion (Li-ion), zinc hybrid cathode, sodium ion, flow (zinc iron or zinc bromine), sodium sulphur (NaS), zinc air and lead acid batteries can be used for grid applications. Compared to other battery options, Li-ion batteries are highly efficient, have a high energy density and are lightweight. As a result of declining costs, Li-ion technology now accounts for more than 90% of battery storage additions globally (IRENA, 2019).

In line with this practise, the applicant is proposing the use of Lithium Battery Technologies, such as Lithium Iron Phosphate (LFP) or Lithium Nickel Manganese Cobalt oxides (NCM).

Location & Size

The proposed BESS will have a footprint of up to 5ha

This will be achieved by consolidating and altering auxiliary footprint areas identified in the approved EA to accommodate the BESS. The approved footprint will not increase in size. Please refer to the

appended site layout plan showing the proposed position of the BESS in relation to other project components.

General Components

The exact design specifications will depend on the battery manufacturer, however traditional utility scale Li-ion battery storage facility include the following main components:

1. Battery cells → modules → packs → racking system (DC)
2. Storage container (HVAC system, thermal management, monitors and controls, fire suppression, switchgear and energy management system).
3. Power conversion system (bidirectional inverter to convert AC to DC for battery charging and DC to AC for discharging).
4. Transformer to step up inverter output.

The inclusion of a BESS into renewable energy facilities is an important step in securing peak demand energy in South Africa. It falls in line with all the relevant policies and programmes that are driving renewable energy development

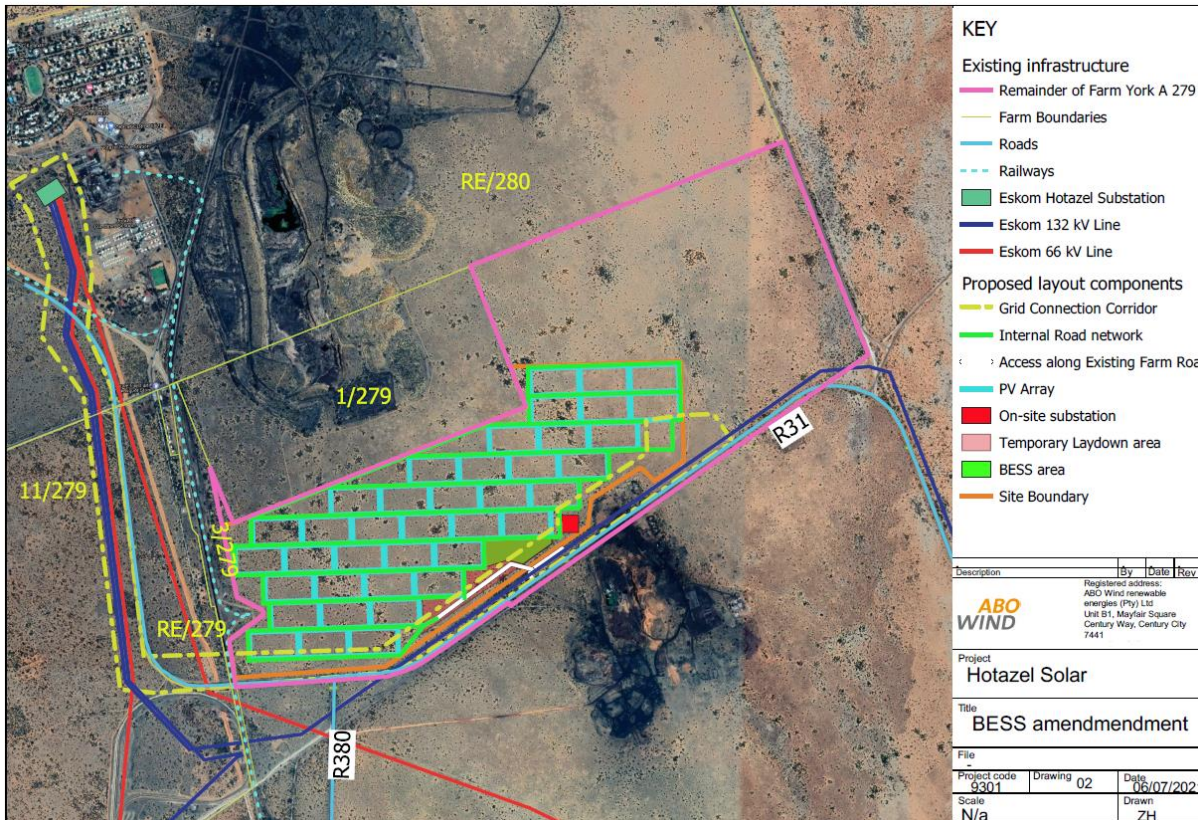


Figure 1: Showing the proposed location of the BESS within the authorised footprint of the facility.

1.2.2 Update of contact details of the Holder of the Environmental Authorisation.

Amendment 1 is an administrative change to update of the contact details to the person who has power of attorney on behalf of the SPV. Please refer to appendix 9 in the application form for a copy of the Power of Attorney. It is important to note that the Holder of the Environmental Authorisation Remains unchanged and that only the contact details are being updated.

1.2.3 Extension of EA validity period

Due to various delays in the DOE’s Renewable Energy Independent Power Producers Procurement Programme (REIPPPP), the applicant has not had an opportunity to bid this project under the

programme. The extension of the validity period of the EA is needed in order to bid this project in future bidding rounds.

1.3 RECOMMENDATION OF THIS ASSESSMENT REPORT

Based on the outcomes of this assessment (which includes input from the relevant participating specialists), as well as the outcome of the risk assessment, it is Cape EAPrac's reasoned opinion that the application for amendment of the Environmental Authorisation be granted, subject to the following conditions:

1. That the BESS Addendum to the EMPr be adopted and implemented for the life cycle of the project;
2. That the additional mitigation measures detailed in section 7 of this assessment report be adopted and implemented; and
3. That the additional mitigation measures identified in the Risk Assessment be implemented.

2. OVERVIEW OF THE ACTIVITIES PROPOSED AS PART OF THE AMENDMENT TO THE EA.

As noted above, amendment proposed relates to the Inclusion of BESS of up to 5ha within the authorised footprint, the update of contact details and the extension of the validity period of the EA.

The update of the contact details and the extension of the EA validity period do not result in any physical changes to the proposed development. This section therefore focusses on the proposed inclusion of the BESS.

Huge strides have been made in the energy storage industry in the past decade; in the last five years, leading regional markets such as China, South Korea, Australia, Japan, parts of the US, the UK, and many parts of Europe have been deploying energy storage, mostly, but not only, lithium-ion batteries. There are many different types of long-duration energy storage solutions, however, choosing the best solution for utility scale storage depends on the hours of energy storage and discharge that can be provided, stage of commercialisation and thus cost, suitability for the site, response time, scalability, lifecycle, etc. The advantages of batteries are that they can be adapted in a flexible and decentralised manner depending on the respective requirements and are scaleable.

Lithium-ion battery systems are the preferred proposed technology, due to the variety of shapes and sizes available, their scalability, speed of deployment, and their rapidly falling cost. Suppliers of lithium-ion batteries that are currently available in the market offer fully integrated, modular, all-in-one units that include the battery management system and safety and protection features delivered as a single unit. Suppliers are typically only confirmed once a project is awarded preferred bidder, however, two different suppliers' integrated lithium-ion energy storage systems are shown below to illustrate the technology in operation.

The applicant is proposing to amend the EA to allow lithium-ion battery technology within the authorised footprint, in order to achieve these objectives.

3. PROJECT NEED AND DESIRABILITY

The need and desirability of the total project considered in the previous environmental process will remain and is not reiterated as part of this amendment application. The section below, therefore provides a summary of the Need and desirability associated with the proposed BESS amendments only.

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

In recent years, recurring large-scale power cuts (i.e. load shedding) have highlighted the need to improve reliability and resilience of electricity supply.

One of the main challenges faced by Eskom is managing and balancing electricity demand and supply. While renewable sources can now achieve lower costs than fossil fuels, photovoltaic (PV) arrays and wind turbines both have variable electricity production, since they rely on energy inputs that cannot be controlled (i.e. sunshine and wind). For this reason, fossil fuels currently still have a key role in the energy sector as they can provide electricity on demand and when consumption reaches its peak.

However, cost reductions of energy storage technologies and the wider deployment of battery (particularly lithium-ion) installations globally, now provides an opportunity to combine renewable energy generation with energy storage to provide dispatchable energy (i.e. energy on demand) and reliable capacity.

3.1 SITE SELECTION PROCESS

The site and footprint selection process was considered in detail during the previous environmental Assessment Process. The site and footprint position have been authorised and therefore the scope of the amendments are restricted to utilise the same spatial scale as the authorised project.

3.2 PROJECT PROGRAMME AND TIMELINES

The intention of the applicant is to bid the amended project under upcoming rounds of the Independent Power Producer Procurement Programme (REIPPPP) or Battery specific bid processes.

Table 2: Preliminary implementation schedule.

	Description	Timeline
1	RFP Release	Last Quarter 2022
2	BID Submission	First Quarter 2023
3	Preferred Bidder Announcement	Second Quarter 2023
4	Financial Close	Third Quarter 2023
5	Construction	Third Quarter 2023
6	Commissioning	Third Quarter 2024

The table above clearly depicts the dependence of the project on the REIPPPP's timelines. Any delay or acceleration within the REIPPPP will have a corresponding effect on the timelines of the projects.

4. LEGISLATIVE AND POLICY FRAMEWORK

The applicable legislation remains the same as what was considered in the Final Environmental Impact Report for Hotazel Solar and as such, it is not re-described in this amendment assessment report.

The table below lists the applicable legislation and describes whether any additional considerations are applicable to the amendment (i.e. that were not considered in the final EIR).

Table 3: Legislation applicable to Hotazel Solar including any additional considerations applicable to the amendment of the EA to include the BESS.

Legislation	Additional considerations for the proposed amendment Amendment.
NATIONAL LEGISLATION	
The Constitution of the Republic of South Africa	No additional considerations applicable to the amendment

Legislation	Additional considerations for the proposed amendment Amendment.
National Environmental Management Act (NEMA)	This application is being undertaken in terms of this legislation. No additional activities listed in terms of this legislation are applicable to the Amendment.
National Environmental Management: Biodiversity (Act 10 of 2004)	The proposed positioning of the BESS within the authorised footprint remains on vegetation type classified as least threatened in terms of this legislation. No additional impact or permitting requirements (TOPS permits) are applicable to this amendment.
Conservation of Agricultural Resources Act – CARA (Act 43 of 1983):	No additional considerations applicable to the amendment.
The Subdivision of Agricultural Land, Act 70 Of 1970	No additional considerations applicable to the amendment
National Water Act, No 36 of 1998	No additional considerations applicable to the amendment
National Forests Act (No. 84 of 1998):	No additional considerations applicable to the amendment
National Heritage Resources Act, 25 of 1998	SAHRA have approved the development footprint in terms of Section 38 of the National Heritage Resources Act. This authorised footprint remains unchanged and it is thus unlikely that further approval in terms of the NHRA will be applicable.. SAHRA have been given an opportunity to comment on this amendment assessment report.
National Energy Act (No. 34 of 2008)	No additional considerations applicable to the amendment.
PROVINCIAL LEGISLATION	
Northern Cape Nature Conservation Act, No. 9 of 2009	No additional considerations applicable to the amendment
Nature and Environmental Conservation Ordinance, No 19 of 1974	No additional considerations applicable to the amendment
Astronomy Geographic Advantage Act, 2007 (Act No 21 Of 2007)	SKAsa / SARAO have been given an opportunity to comment on this amendment assessment report.
Northern Cape Provincial Spatial Development Framework (PSDF) 2012	No additional considerations applicable to the amendment
GUIDELINES, POLICIES AND AUTHORITATIVE REPORTS	
National Protected Area Expansion Strategy (NPAES) for S.A. 2008 (2010)	No additional considerations applicable to the amendment. The project footprint remains unchanged and thus outside of any protected area expansion focus areas.
Critical Biodiversity Areas	No additional considerations applicable to this amendment. The project footprint remains unchanged and thus still outside of any critical biodiversity areas.
White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)	No additional considerations applicable to the amendment
White Paper on the Energy Policy of the Republic of South Africa (1998)	No additional considerations applicable to the amendment
Integrated Energy Plan (IEP), 2015	No additional considerations applicable to the amendment.
Integrated Resource Plan for Electricity (2010-2030)	No additional considerations applicable to the amendment
National Development Plan 2030 (2012)	No additional considerations applicable to the amendment.
Strategic Infrastructure Projects (SIPs)	No additional considerations applicable to the amendment.
The Convention on the Conservation of Migratory Species of Wild Animals	No additional considerations applicable to the amendment.
Guidelines to minimise the impacts on birds of Solar Facilities and Associated Infrastructure in South Africa	No additional considerations applicable to the amendment The monitoring regime remains the same as was assessed.
Environmental Impact Assessment Guideline for Renewable Energy Projects	No additional considerations applicable to the amendment.
Sustainability Imperative	No additional considerations applicable to the amendment.

5. SITE DESCRIPTION AND ATTRIBUTES

As the proposed BESS falls entirely within the previously assessed and authorised footprint, the site description and attributes associated with this amendment remain unchanged from what was presented in the original environmental assessment.

The target property, Remainder of Farm York A 279, is located in the John Taolo Gaetsewe District (previously Kgalagadi District) of the Northern Cape Province, within the jurisdiction area of the Joe Morolong Local Municipality. The property is approximately 636.794 ha in size and is located approximately 3km south of Hotazel.

The proposed Hotazel Solar facility is situated directly north of the R31 and directly east of the R380. No buildings, ruins or any other structures were noted on or within the direct proximity of the proposed site..

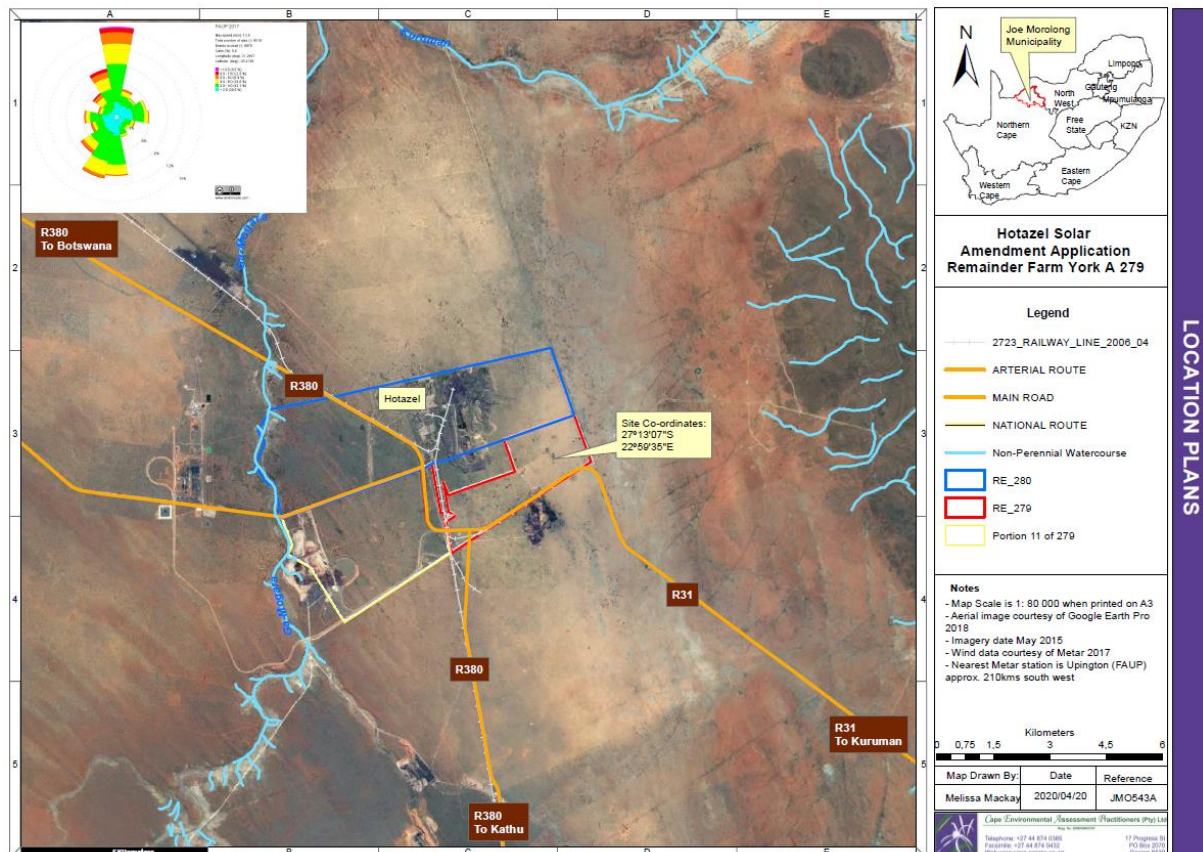


Figure 2: Location of the proposed PV Facility.

The proposed project area does not fall within any threatened ecosystems, National Protected Areas, National Protected Area Expansion Strategy (NPAES) Focus Areas or areas of conservation planning..

Vegetation of the affected area consists of Kathu Bushveld (least concern).

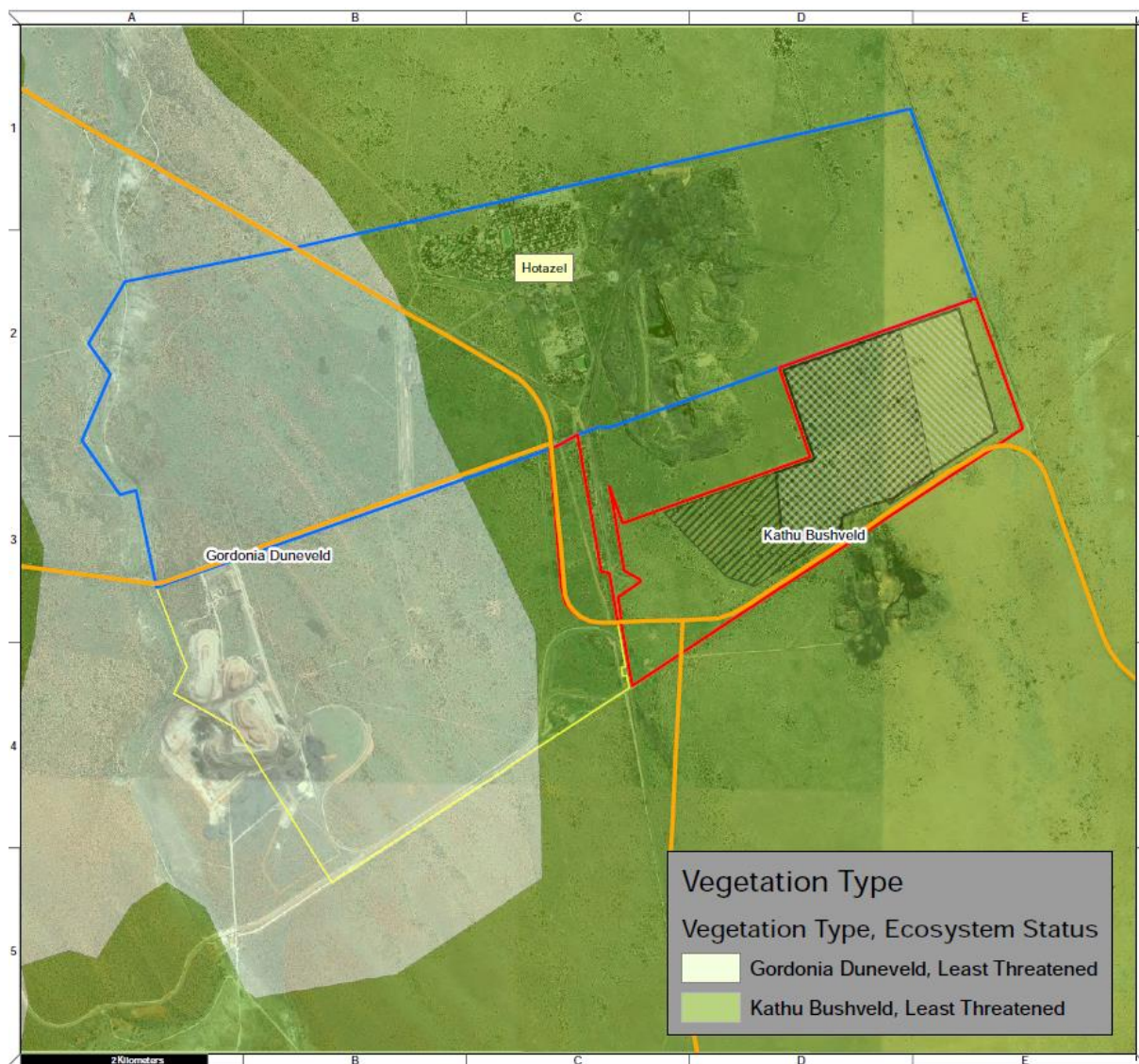


Figure 3: Broad vegetation type associated with the project.

The proposed position of the BESS is not situated within a Critical Biodiversity Area, nor an Ecological Support Area.

The proposed positioning of the BESS is not within any Freshwater Ecosystem Priority Areas.

6. ASSESSMENT OF IMPACTS ASSOCIATED WITH THE PROPOSED AMENDMENTS

In terms of Regulation 32(1)(a)(i), an assessment of the impacts of the proposed amendments must be provided. This section focusses on the amendments that constitute physical changes to the environment (i.e the addition of a BESS to the authorised footprint). The remaining amendments are not envisioned to result in any additional physical environmental impacts

As agreed to with the competent authority during the pre-application meeting, this amendment assessment is supplemented with statements from the relevant participating specialists.

The participating specialists were requested to provide a statement in terms of their specific disciplines to confirm the following:

1. Whether the inclusion of a BESS within the footprint adjacent to the on-site substation will change the nature or significance any of the impacts assessed in the original study.
2. Whether the BESS is likely to result in any additional impacts that were not previously assessed in the original study.
3. Whether any additional management outcomes or mitigation measures in terms of each specialist discipline would be applicable to the BESS.

The specialist statements referred to above are attached in Appendix E and the findings of each of these specialists relating to the potential impacts of the BESS are summarised in the following sections.

6.1 ECOLOGICAL IMPACTS

The ecological specialist, Mr Simon Todd provided a statement on the potential impacts associated with the BESS amendments within the authorised footprint of the facility. A copy of this statement is included in appendix E, from which the following is summarised.

The specialist was requested to provide confirmation in terms of the following:

1. Whether the inclusion of a BESS adjacent to the on-site substation will change the nature or significance of any of the impacts as assessed in the original ecological study.
2. Whether the BESS is likely to result in any additional impacts that were not previously assessed.
3. Whether any additional management outcomes or mitigation measures would be applicable

6.1.1 Change in Impact Due to the Proposed Inclusion of the BESS

The location of the BESS is within the previously assessed footprint area of the project. The BESS is located adjacent to the facility substation and is within a medium sensitivity area with no features of concern in close proximity to the BESS.

In the original ecological assessment, it was assumed that the habitat within the facility would be largely lost in its entirety to the development. As such, the addition of the BESS within the assessed footprint would not increase direct habitat loss. In terms of additional risks, there do not appear to be any significant additional risks to ecology associated with the BESS.

6.1.2 Potential for Novel Impacts Associated with the BESS

The BESS consists of battery storage units in containers and would not change the nature of impacts associated with the solar facility. However, the BESS would include cooling systems which presumably would include fans that would generate some noise above that which would have occurred at the substation alone. As such, the BESS may increase noise associated with the facility to a small degree. However, since this is likely to be of a low intensity, this is not seen as adding significant impact to the existing development. Overall, there are no additional or novel impacts associated with the BESS that were not already assessed for the existing solar facility.

6.1.3 Additional Mitigation Measures

No additional mitigation measures or changes to the EMP mitigation measures would be required in terms of this amendment, as no significant change to impacts or new impacts will occur. All the original avoidance and mitigation measures as indicated in the original botanical and faunal study are still relevant and applicable to the amended layout and must be implemented.

6.2 AGRICULTURAL IMPACTS

An Agricultural Impact Statement was undertaken by Mr Christo Lubbe. A copy of this assessment is attached in **Appendix E**.

The agricultural specialist confirmed, without doubt, confirm that the BESS

1. will not change or increase the nature or severity of any of the agricultural impacts originally identified and reported in the Final EIR;
2. Will have no additional impacts to those identified previously in my study; and
3. Will not require any additional management outcomes or mitigation measures for the agricultural environment that were not indicated during the previous study.

This declaration is made after the specialist confirmed that the BESS will indeed be placed within the authorised footprint and that no additional agricultural land will be involved or lost;

The construction of the BESS will have no additional influence on erosion or drainage patterns on site, since it will be located on higher local elevation with runoff taking place outwards.

During construction, spillage of fuel or concrete is possible, as with the construction of all other components of the facility. Mitigation measures prescribed in the original study will be the same in this case.

It is likely that the batteries will require solid foundations like concrete pads or steel decks, which is not different from the foundations for the pylons of the connection line or foundations for auxiliary buildings and the substation. Mitigation measures and management practices were included in the original study.

From an agricultural view point, the specialist concluded that there are no additional management or mitigation measures required for the Battery Energy Storage System recommend that the EA be amended to include the BESS.

6.3 HERITAGE IMPACTS

The proposed BESS falls entirely within the footprint authorised in terms of Section 38(8) of the National Heritage Resources act and as such will not have any further impacts on Heritage Resources.

6.4 VISUAL IMPACTS

A Visual Impact Statement was undertaken by Mr Stephen Stead of VRMA. A copy of this assessment is attached in **Appendix E**.

Th visual specialist concluded that due to vegetation along the R31, direct visibility of the BESS structures is likely to be limited.

The original environmental mitigations submitted for the initial PV EIA needs to be incorporated. The only addendum regarding the BESS mitigation is:

- To reduce colour contrast, if permitted by the Original Equipment Manufacturer, the container structure should preferably be painted a grey-brown colour so as to blend with the surrounding arid regional landscapes.
- Retain existing tree vegetation along the boundary between the BESS and the R31 to assist in visual screening.
- Light spillage has the potential to extend the project visual influence at night. Light spillage mitigations need to be incorporated to ensure that lighting enhances security without creating a pool of light. Security lights should not include overhead lighting and be inward and downward facing as much as possible.

The visual specialist has concluded that there is a good policy fit for the Hotazel PV Facility and the region already includes a number of large-scaled renewable energy projects that define the sense of place. It is the finding of the visual statement that the previous Hotazel PV VIA Significance ratings of

Low-Negative will not be changed. Thus, the recommendation of this visual statement is that the incorporation of the BESS development for Hotazel PV Facility is unlikely to result in the loss of significant visual and scenic resources, and as such should be authorised with mitigation.

6.5 SOCIAL IMPACTS

A Social Impact Statement was undertaken by Savannah Environmental. A copy of this assessment is attached in **Appendix E**.

Based on the nature of the proposed amendment for Hotazel Solar project, and the fact that the additional BESS falls within the property and development footprint which was fully assessed as part of the SIA, it can be concluded that the amendment will not lead to any additional impacts other than those identified and assessed within the SIA. No change in the significance of the impacts is expected to occur and there is no need for any additional recommendations or mitigation measures other than those already specified in the SIA.

Noting the above considerations, the specialist confirmed that the proposed inclusion of a Battery Energy Storage System (BESS) within the authorised footprint of the Hotazel Solar project:

- Will not change or increase the nature or severity of any of the social impacts originally identified and reported in the original SIA;
- Will have no additional impacts to those identified previously in the Social Impact Assessment; and
- Will not require any additional management outcomes or mitigation measures in the terms of the social impact assessment, and no additional measures are required applicable to the BESS.

The social specialist confirmed that the proposed amendment is acceptable from a social perspective and can be approved, subject to the implementation of the mitigation and enhancement measures as specified in the SIA.

6.1 FRESHWATER IMPACTS

The freshwater specialist, Dr Brian Colloty confirmed that the proposed amendments would not have any direct or indirect impact on the aquatic environment due to the lack of any such systems within the greater region.

6.2 CUMULATIVE IMPACT ASSESSMENT

The cumulative impact of the facility as a whole was considered and assessed in detail in the previous Basic Assessment Process. The main cumulative impact assessed in the original EIA process was the potential fragmentation of the landscape and the ability to attain conservation targets in the affected vegetation. The proposed amendment includes the construction and operation of a BESS that falls within the authorised footprint and as such will not have any additional cumulative impact in terms of landscape fragmentation and the ability to achieve conservation targets. .

6.3 IMPACT SUMMARY

The table below provides a comparative summary of the nature and significance of overall impacts originally assessed versus those associated with the addition of the BESS. As can be seen in this summary table, the proposed amendment does not change the nature, nor the significance of the impacts already assessed.

Table 4: Comparative summary of the post mitigation significance of impacts associated with Hotazel Solar as authorised and those associated with the addition of the BESS.

As can be seen in in the table above, the proposed amendment does not change the nature, nor the significance of the impacts already assessed.

Impact	Current Significance and Status	Significance and statement with addition of BESS.
Impacts on vegetation and listed or protected plant species resulting from construction activities of the PV Plant	Medium – Low (Negative)	Medium – Low (Negative)
Direct Faunal Impacts During Construction of the PV Plant	Low (Negative)	Low (Negative)
Soil Erosion Risk During Construction of the PV Plant	Low (Negative)	Low (Negative)
Alien Plant Invasion Risk During Operation of the PV Plant	Low (Negative)	Low (Negative)
Soil Erosion Risk During Operation of the PV Plant	Low (Negative)	Low (Negative)
Faunal impacts during operation of the PV Plant	Low (Negative)	Low (Negative)
Cumulative Impact on broad-scale ecological processes due to cumulative loss and fragmentation of habitat	Low (Negative)	Low (Negative)
Impacts on vegetation and listed or protected plant species resulting from construction activities of the OHL	Low(Negative)	Low (Negative)
Ecosystem degradation along the power line route due to erosion and alien plant invasion.	Low (Negative)	Low (Negative)
The possibility of permanent loss of high potential agricultural land and the impairment of land capability due to construction.	Low (Negative)	Low (Negative)
Veld conditions for grazing and the possible impact of vegetation removal during construction.	Medium (Negative)	Medium (Negative)
The alteration of drainage patterns and its associated risk for erosion; due to the removal of vegetation during construction of the plant, the building of service and access roads if rehabilitation is not properly done in erosion-sensitive areas.	Low (Negative)	Low (Negative)
Changes in hydrological regimes	Very Low (Negative)	Very Low (Negative)
Impact on Avifaunal Priority Species	Medium – Low (Negative)	Medium – Low (Negative)
Impact on Avifaunal displacement	Low (Negative)	Low (Negative)
Avian Electrocutation Impact	Low (Negative)	Low (Negative)
Avian Collision Impact	Medium (Negative)	Medium (Negative)
Overall Visual Impact	Low (Negative)	Low (Negative)
Impact on Archaeological Resources during construction	Low (Negative)	Low (Negative)
Impact on Archaeological resources during operation	Low (Negative)	Low (Negative)
Impact on Palaeontological Resources during construction	Low (Negative)	Low (Negative)
Impact on Palaeontological Resources during operation	Low (Negative)	Low (Negative)
Creation of employment and Business opportunities	Medium (Positive)	Medium (Negative)
Impact of heavy machinery and construction activities	Low (Negative)	Low (Negative)
Loss of farmland	Low (Negative)	Low (Negative)
Loss of riparian systems	Low (Negative)	Low (Negative)
Impact on dry riverbeds and localised drainage systems	Low (Negative)	Low (Negative)
Impact on riparian systems through the possible increase in surface water runoff on riparian form and function	Low (Negative)	Low (Negative)
Increase in sedimentation and erosion within the development footprint	Low (Negative)	Low (Negative)
Creation of direct and indirect employment and skills development opportunities.	Medium (Positive)	Medium (Positive)
Economic multiplier effects	Medium (Positive)	Medium (Positive)

Impact	Current Significance and Status	Significance and statement with addition of BESS.
In-migration of people (non-local workforce and jobseekers).	Low (Negative)	Low (Negative)
Safety and security impacts	Low (Negative)	Low (Negative)
Impacts on daily living and movement patterns	Medium (Positive)	Medium (Positive)
Nuisance impact (noise and dust)	Low (Negative)	Low (Negative)
Visual and sense of place impacts	Low (Negative)	Low (Negative)
Direct and indirect employment and skills development opportunities	Medium (Positive)	Medium (Positive)
Development of non-polluting, renewable energy infrastructure	Medium (Positive)	Medium (Positive)
Contribution to LED and social upliftment	High (Positive)	High (Positive)
Visual and sense of place impacts	Low (Negative)	Low (Negative)
Impacts associated with the loss of agricultural land.	Low (Negative)	Low (Negative)

6.4 IMPACT STATEMENT

None of the participating specialists identified any new impacts that were not previously assessed, nor did they identify any major changes in the significance of the impacts that were previously assessed. The BESS will marginally increase the level of transformation of available habitat, but not to such a degree that it would increase the significance thereof.

It can therefore be stated with a relatively high level of confidence that the addition of the BESS to the authorised facility will not result in any unacceptable environmental impacts.

7. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENTS.

In terms of Regulation 32(1)(a)(ii), the amendment assessment report must include the details of the advantages and disadvantages of the proposed amendment. These are summarised in the table below for each of the proposed amendments.

Table 5: Advantages and Disadvantages of the proposed amendments.

Advantages of Proposed Amendment	Disadvantages of Proposed Amendment
Inclusion of BESS of up to 5ha within the authorised footprint	
<p>The construction and operation of the BESS will allow for the PV facility to provide energy into the National Grid outside of sunlight hours and as such be able to provide stored energy during peak times when traditional PV is not available.</p> <p>This will eliminate the need to construct additional non-renewable energy generation facilities to provide energy to the national grid during these peak times.</p>	<p>None. All of the participating specialists confirmed that the addition of the BESS within the authorised project footprint would not increase the level or nature of the impacts previously assessed.</p>

It is concluded that the advantages of the proposed amendments outweigh the disadvantages from an environmental perspective.

As a result, the implementation of the proposed amendments is considered acceptable from an environmental and social perspective and will not result in additional environmental impacts which were not considered in the original environmental process for the proposed development.

8. MANAGEMENT AND MITIGATION MEASURES

As required in terms of Regulation 32(1)(a)(iii), this assessment report must provide any additional measures to ensure avoidance, management and mitigation of impacts associated with the proposed amendment.

Based on the outcome of this environmental assessment, it is recommended that the following additional mitigation measures be included as conditions of authorisation of the amendment decision:

- The applicant must compile and implement a Lifecycle Battery Recycling Programme. This programme should be submitted to the competent authority for approval prior to the commencement of construction of the BESS.
- The applicant must compile and implement a thermal management and monitoring programme. This programme should be completed prior to the operation of the BESS.
- During the construction phase of the project, first responders from Hotazel (such as fire fighters and paramedics) must be given appropriate training on dealing with any emergency situation that may occur as a result of the BESS; such training must be provided by the technology suppliers or an appointed service provider.
- The applicant must compile and implement a comprehensive BESS operations and maintenance programme to ensure all monitoring and protective devices remain in good working order; this comprehensive operations and maintenance programme must amongst others ensure thermal management safety protocols are in place.
- In the unlikely event of a thermal runaway, any contamination of land (including any nearby watercourse) that occurs as a result of this event needs to be contained and cleaned up by a specialist contractor and the area rehabilitated to its former state.

A BESS risk assessment is attached in Annexure G. This risk assessment identified additional mitigations that would need to be implemented prior to the construction of the BESS facility.

Table 6: BESS risk assessment detailing additional mitigation measures required prior to commencement of construction.

Risk / Impact	Discussion	Likelihood of Risk	Impact of risk	Management / Mitigation
BESS component / equipment risks				
Mishandling	Considering that a battery is a source of energy, there is a danger that should it be punctured, incinerated, crushed, immersed, have a forced discharge or exposed to temperatures above the declared operating temperature range of the product, there is a risk that an internal or external short circuit may occur. An internal or external short circuit can cause significant overheating which in some cases could result in fire, that could affect surrounding materials or materials within the cell or battery.	Low	Electrocution. On site fires. Electrical failure. Potential spillage of electrolytes (very low likelihood with lithium batteries).	Training and well managed operations and maintenance. Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed, provided the battery integrity is maintained and seals remain intact. Risk of exposure may occur only in cases of abuse (mechanical, thermal, electrical).
Mechanical Damage	If batteries are not properly stored when not in use prior to installation, there is a possibility that mechanical damage may occur leading to: <ul style="list-style-type: none"> • Leaked battery pack coolant • Leaked refrigerant • Leaked cell electrolyte • Rapid heating of individual cells due to exothermic reaction of constituent 	Low	On site fires. Electrical failure. Potential spillage of electrolytes or refrigerant.	Adequate on-site management during the construction and operations and maintenance periods.

Risk / Impact	Discussion	Likelihood of Risk	Impact of risk	Management / Mitigation
	<p>materials (cell thermal runaway), venting of cells, and propagation of self-heating and thermal runaway reactions to neighbouring cells.</p> <ul style="list-style-type: none"> • Fire 			
Leaked Coolant or Refrigerant	<p>Thermal management of some Li-ion battery packs is achieved via liquid cooling using coolant or refrigerant products. Mechanical damage of a battery pack that has been installed could result in leakage of the coolant. The fluid is generally blue in colour and does not emit a strong odour. This coolant if released has toxicological hazards and ecological effects as well as additional impacts relating to the disposal of leaked fluids.</p> <p>Additionally, extended exposure of the battery system to leaked coolant could cause additional damage to the product such as corrosion and compromising of protection electronics.</p>	Low	<p>Potential spillage of electrolytes.</p> <p>Ecological damage.</p> <p>Electrical failure.</p>	<p>Maintenance.</p> <p>Source from reputable manufacturers.</p> <p>Safe and appropriate storage.</p> <p>Safe handling which must include battery inspection prior to installation.</p>
Vented Electrolyte	<p>Li-ion cells are sealed units, and thus under normal usage conditions, venting of electrolyte should not occur. If subjected to abnormal heating or other abuse conditions, electrolyte and electrolyte decomposition products can vaporize and be vented from cells. Accumulation of liquid electrolyte is unlikely in the case of abnormal heating. Vented gases are a common early indicator of a thermal runaway reaction – an abnormal and hazardous condition.</p>	Low	<p>On site fires.</p> <p>Electrical failure.</p> <p>Vent gases.</p>	<p>Maintenance.</p> <p>Source from reputable manufacturers.</p> <p>Safe and appropriate storage.</p> <p>Safe handling which must include battery inspection prior to installation.</p>
Thermal Runaway (TR)	<p>Li-ion battery thermal runaway occurs when a cell, or area within the cell, achieves elevated temperatures due to thermal failure, mechanical failure, internal/external short circuiting and electrochemical abuse. At elevated temperatures, exothermic decomposition of the cell materials begins. Eventually, the self-heating rate of the cell is greater than the rate at which heat can be dissipated to the surroundings, the cell temperature rises exponentially, and stability is ultimately lost. The loss in stability results in all remaining thermal and electrochemical energy being released to the surroundings.</p> <p>It's widely accepted that most TRs are caused by mechanical, electrical or thermal abuses.</p>	Low	<p>On site fires.</p> <p>Electrical failure.</p> <p>Potential spillage of electrolytes.</p>	<p>Maintenance.</p> <p>Despite various factors that may lead to TR, materials including electrode materials as well as electrolytes, and battery design such as negative/positive capacity ratio and venting control, to name but a few, are the intrinsic approaches to enhance the battery safety.</p> <p>Source from reputable manufacturers.</p> <p>Safe and appropriate storage.</p> <p>Safe handling which must include battery inspection prior to installation.</p>

Risk / Impact	Discussion	Likelihood of Risk	Impact of risk	Management / Mitigation
				Development and implementation of Thermal Management Plan.
Limited knowledge and experience of First Responders to deal with emergency incidents.	As this technology is relatively new in a South African context, the first responders in an unlikely event of an incident may not have the necessary knowledge or experience to deal with an emergency situation such as fire or leakage.	Low	Fire. Electrocution. Injury. Inability to contain spillage.	During the construction phase of the project, first responders from the nearest major centre (such as fire fighters and paramedics) must be given appropriate training on dealing with any emergency situation that may occur as a result of the BESS. Such training must be provided by the technology suppliers or an appointed service provider. Appropriate warnings and Standard Operating Procedure for emergency events must be developed and must be provided to the local emergency services and the O&M staff on site.
Disposal at end of life	Disposal of Li-ion batteries to landfill is problematic and recycling should be prioritised. Research in Australia found that just 2% of the country's 3,300 tonnes of Li-ion waste is recycled. South Africa fares far worse (as of November 2019, there was no Li-ion battery recycling facility in South Africa (eWASA)) and Li-ion batteries along with significant amounts of e-waste are not properly disposed of or sent for recycling. In addition to the lithium, manufacturers are secretive about what actually goes into their batteries, which makes it harder to recycle them properly. And while lithium itself isn't of great concern from a pollution angle, these batteries do contain metals like cobalt, nickel, and manganese. The potentially toxic materials contained in batteries means that they are classified as hazardous materials in terms of NEM:WA. There are only a few licensed hazardous waste sites in South Africa and recycling of batteries and e-waste has been identified as a sure way of improving the lifespans of such sites.	High	Potential scenario of fluids from the batteries leaking into environment. The release of such chemicals through leaching, spills or air emissions can harm communities, ecosystems and food production.	Recovery of metals at end of life can significantly reduce these life cycle impacts. This is because the extraction and processing of virgin materials are key contributors to impacts for all battery chemistries. Prior to commencement of the activity, a dedicated Battery Recycling Programme must be compiled and adopted.
General Environmental Risks				
Hydrocarbon Spillage	The BESS area will contain transformers which contain oil for cooling (unless air-cooled). Temporary fuel storage will take place during the construction phase.	Low	Contamination of land and adjacent water resources.	Implementation of the Management actions already included in the EMP.

Risk / Impact	Discussion	Likelihood of Risk	Impact of risk	Management / Mitigation
Physical damage to surrounding natural areas	Construction activities if not properly managed could impact on areas outside of the construction footprint.	Medium	Physical damage to habitat.	Implementation of the Management actions already included in the EMPr particularly in relation to the demarcation of no-go areas.
Impact on species of conservation concern	The transformation of habitat associated with the BESS, may have a direct impact on species of conservation concern.	Medium	Loss of individual plants within the footprint of the BESS.	Implementation of the Management actions already included in the EMPr. Compliance with the conditions of the Threatened or protected species (TOPS) permits. Undertaking plant rescue in compliance with the plant rescue and protection plan.
Concrete contamination	Run off from concrete civil works could contaminate surrounding areas.	Low	Contamination of land and surrounding water resources.	Implementation of the Management actions already included in the EMPr. Use of ready-mix concrete and the limitation of on-site batching.
Dust	Dust fall out from construction activities.	Medium	Health and safety impacts. Impacts on surrounding vegetation.	Implementation of the Management actions already included in the EMPr. Implementation of a dust fall out monitoring programme.
Protection of Archaeological Resources	Subterranean resources could be exposed during excavations.	Low	Loss of archaeological resources.	Implementation of the Management actions already included in the EMPr. ECO Inspection of all excavations. Compliance with requirements of SAHRA authorisation.
Loss of topsoil resources	All construction activities will have the possibility to impact on topsoil resources.	Low	Loss of Topsoil Contamination of Topsoil.	Implementation of the Management actions already included in the EMPr particularly with regard to topsoil handling and the stripping and stockpiling of topsoil from the BESS footprint prior to construction.
Noise Impact	Although the proposed development is located outside of an urban area, construction noise could have an impact on sensitive receptors.	Low	Impact on health and safety of construction staff. Impact on displacement of fauna.	Implementation of the Management actions already included in the EMPr and compliance with the relevant legislation with respect to noise inter alia Section 25 of ECA (73 of 1989) and standards applicable to noise nuisances in the Occupational Health and Safety Act (No. 85 of 1993).

Risk / Impact	Discussion	Likelihood of Risk	Impact of risk	Management / Mitigation
Siltation and erosion	Stormwater and wash water have the potential to cause erosion or pollution of the receiving environment.	Low	Contamination of surrounding land. Impact on water Quality.	Implementation of the Management actions already included in the EMPr. Implementation of the Stormwater Management Plan.
Theft and other crime.	An increase in crime during the construction phase is often a concern during the development of the overall facility, including the BESS. This is likely to be negligible due to the extremely remote nature of the site.	Low	On site theft. Theft at surrounding properties.	Implementation of the Management actions already included in the EMPr. Implementation of a site security plan.
Wildfires	The solar development site including the BESS is arid, with sparse vegetation cover and fires are not a natural phenomenon in the area. However, under exceptional circumstances, such as following years of very high rainfall, sufficient biomass may build up to carry fires.	Low	Damage to infrastructure.	Implementation of the Management actions already included in the EMPr. Maintaining a firebreak around the total project footprint in the form of a perimeter road.

9. PUBLIC PARTICIPATION PROCESS

All registered I&AP's from the original EIA have been notified of the availability of the application for amendment and amendment assessment report (including all supporting documentation). These documents have been made available for a 30 day review and comment period. In addition to the notifications, an advert has been placed in the Kathu Gazette and a Site notice has been placed on the boundary of the property. The Advert and Site Notice provides details on the proposed development as well as details on where any potential new I&AP's can access the information.

Proof of public participation will be included in the final Amendment Assessment Report after completion of the public participation process.

10. CONCLUSION AND RECOMMENDATIONS

This environmental process is currently being undertaken to present the details of the proposed amendment to potential and registered I&APs and to identify and assess environmental impacts, issues and concerns that may result from the proposed amendment to the Environmental Authorisation.

Cape EAPrac is of the opinion that the information contained in this Amendment Assessment Report and the documentation attached hereto is sufficient to allow the registered and potential I&APs to apply their minds to the potential negative and/or positive impacts associated with the development, in respect of the amendments applied for.

This environmental process has not identified any fatal flaws nor major irreversible impacts with the proposed amendments. As such, it is the EAP's view that the proposed amendments can be considered for authorisation subject to the implementation of the suggested mitigation measures.

All participating specialists have confirmed that the inclusion of the BESS is unlikely to result in any additional impacts nor increase any of the respective impacts previously assessed.

All stakeholders are requested to review this Draft Amendment Assessment Report and the associated appendices, and provide comment, or raise issues of concern, directly to *Cape EAPrac* within the specified 30-day comment period. All comments received during this comment period will be considered

and incorporated into the Final Amendment Assessment Report that will be submitted to DFFE for decision making.

Based on the outcomes of this assessment (which includes input from the participating specialists), as well as the outcome of the risk assessment, it is Cape EAPrac's reasoned opinion that the application for amendment of the Environmental Authorisation be granted, subject to the following conditions:

1. That the BESS Addendum to the EMPr be adopted and implemented for the life cycle of the project;
2. That the additional mitigation measures detailed in section 7 of this assessment report be adopted and implemented; and
3. That the additional mitigation measures identified in the Risk Assessment be implemented.

11. ABBREVIATIONS

AIA	Archaeological Impact Assessment
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DEA&NC	Department of Environmental Affairs and Nature Conservation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMC	Electromagnetic Compliance
EMPr	Environmental Management Programme
ESA	Ecological Support Area
I&APs	Interested and Affected Parties
IPP	Independent Power Producer
kV	Kilo Volt
MW	Mega Watt
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RMIPPPP	Risk Mitigation Independent Power Producer Procurement Programme
S.A.	South Africa
SAHRA	South African National Heritage Resources Agency
TOPS	Threatened and Protected Species

12. REFERENCES

¹DEA (2010). National Climate Change Response Green Paper 2010.

DEA (January 2008). *National Response to South Africa's Electricity Shortage*. Interventions to address electricity shortages.

DEA&DP (2003). *Waste Minimisation Guideline for Environmental Impact Assessment reviews*. NEMA EIA Regulations Guideline & Information Series, Department Environmental Affairs & Development Planning.

DEA&DP (2005). *Guideline for the review of specialist input in the EIA process*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2005). *Guideline for involving biodiversity specialists in the EIA process*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2005). *Guideline for environmental management plans*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2005). *Provincial urban edge guideline*. Department Environmental Affairs & Development Planning.

DEA&DP (2006). *Guideline on the Interpretation of the Listed Activities*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2007). *Guide on Alternatives*, NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2007). *Guideline on Appeals*, NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2007). *Guideline on Exemption Applications*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2007). *Guideline on Public Participation*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

DEA&DP (2009). *Guideline on Need & Desirability*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.

DEA&DP (2009). *Guideline on Alternatives*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.

DEA&DP (2009). *Guideline on Transitional Arrangements*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.

DEA&DP (2009). *Guideline on Exemption Applications*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.

¹ This reference list excludes specialist studies that form part of this environmental amendment process and which are contained in Annexure E1 – E9

DEA&DP (2009). *Guideline on Appeals*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.

DEA&DP (2009). *Guideline on Public Participation*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.

DEA&DP. (May 2006). *Strategic Initiative to Introduce Commercial Land Based Wind Energy Development to the Western Cape: Specialist Study: Executive Summary* - CNdV Africa prepared for Provincial Government of the Western Cape.

Department of Mineral & Energy (1998). White Paper on Energy Policy of the Republic of South Africa.

Department of Mineral & Energy (2003). *The White Paper on Renewable Energy*.

DEAT (2002). Integrated Environmental Management Information Series 3: *Stakeholder Engagement*. Department of Environmental Affairs and Tourism, Pretoria.

DEAT (2004). *Criteria for determining alternatives in EIAs*, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs & Tourism, Pretoria.

DEAT (2004). *Environmental Management Plans*, Integrated Environmental management, Information Series 12, Department Environmental Affairs & Tourism.

DEAT (2005). *Assessment of Impacts and Alternatives*, Integrated Environmental Management Guideline Series, Department of Environmental Affairs & Tourism, Pretoria.

DEAT (2005). Guideline 4: *Public Participation*, in terms of the EIA Regulations 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism, Pretoria.

DEAT (2006). *EIA Regulations* in terms of the National Environmental Management Act (Act No 107 of 1998) (Government Notice No R 385, R 386 and R 387 in Government Gazette No 28753 of 21 April 2006).

DWA (2001). *Generic public participation guideline*. Department of Water Affairs and Forestry.

Hsai-Yang, F (Ed)(2006). *Environmental Geotechnology Dictionary* (online version). University of North Caroline, Charlotte, USA.

Integrated Resource Plan for Electricity (Oct. 2010). Revision 2, Version 8.

International Finance Corporation – World Bank Group. (April 2007). Environmental, Health and Safety Guidelines for Electric Power Transmission and Distribution.

International Finance Corporation – World Bank Group. (April 2007). *Environmental, Health and Safety Guidelines for Wind Energy*.

International Finance Corporation – World Bank Group. (April 2007). *General Environmental, Health and Safety Guidelines*.

Keatimilwe K & Ashton PJ 2005. *Guideline for the review of specialist input in EIA processes*. Department Environmental Affairs & Development Planning.

Lochner P (2005). *Guideline for Environmental Management Plans*. Department Environmental Affairs & Development Planning.

Lower Orange River Transfrontier Conservation Area Planning: Background Information Document (August 2007). Retrieved on 29 March 2012 from:

www.dwaf.gov.za/Documents/Other/RMP/LOR/LORRMPBIDAug07.pdf

Mucina, L. & Rutherford, M.C. (eds) 2006. *The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19*. South African National Biodiversity Institute, Pretoria.

Münster, F. (2005). *Guidelines for Determining the Scope of Specialist Involvement in EIA Processes: Edition 1*. CSIR Report No ENV-S-C 2005 053 A. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning, Cape Town.

Oberholzer B (2005). *Guideline for involving visual & aesthetic specialists*. Department Environmental Affairs & Development Planning.

National Energy Regulator of South Africa (NERSA)(Feb.2010). Rules on selection criteria for renewable energy projects under the REFIT Programme.

National Protected Area Expansion Strategy for S.A. 2008: Priorities for expanding the protected area network for ecological sustainability and climate change adaptation. Government of South Africa, Pretoria, 2010. ISBN 978-1-919976-55-6.

Northern Cape Business online. Retrieved from: <http://www.northerncapebusiness.co.za> on 27 March 2012.

Northern Cape Business online. Solar Power. Retrieved from: http://www.northerncapebusiness.co.za/special_features/941417.htm on 27 March 2012.

Saayman, I. (2005). *Guideline for Involving Hydrogeologists in EIA Processes: Edition 1*. CSIR Report No ENV-S-C 2005 053 D. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning, Cape Town.

SANBI Biodiversity GIS (2007). South African National Biodiversity Institute, Cape Town, South Africa.

Winter S & Beaumann N (2005). *Guideline for involving heritage specialists in EIA processes*. Department Environmental Affairs & Development Planning.