



FINAL AMENDMENT ASSESSMENT REPORT

for

AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION FOR DYASONSKLIP SOLAR ENERGY FACILITY 1 TO INCLUDE BATTERY ENERGY STORAGE SYSTEM

on the Remainder of the farm Dyason's Klip 454, Upington,
Northern Cape

In terms of the

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

Prepared for Applicant: Dyasonsklip Solar Energy Facility 1 (Pty)
Ltd.

Date: 20 October 2020

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Report Reference: KAI655/06

Department Reference: 14/12/16/3/3/2/705

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| NAME | TITLE | SIGNATURE |
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| Dale Holder | Senior Environmental Practitioner |  |

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| Dyasonsklip Solar Energy Facility 1 (Pty) Ltd |

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PURPOSE OF THIS REPORT:

DEFF Decision Making.

APPLICANT:

Dyasonsklip Solar Energy Facility 1 (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

KAI582/29

DEPARTMENT REFERENCE:

14/12/16/3/3/1/705

SUBMISSION DATE:

20 October 2020

Final 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)

Dyasonsklip Solar Energy Facility 1

Remainder of the farm Dyason's Klip 454, Upington, Northern Cape.

Submitted for:

Stakeholder Review & Comment

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REPORT DETAILS

| | |
|--|--|
| Title: | Final Amendment Assessment Report for Dyasonsklip Solar Energy Facility 1. |
| 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 was available to all registered and potential interested and affected parties for a 30 day review and comment period extending from 08 September 2020 – 08 October 2020.</u></p> <p>All comments received during this comment period have been incorporated into this Final Amendment Assessment report that is herewith submitted to the DEFF for decision making.</p> |
| Prepared for: | Dyasonsklip Solar Energy Facility 1 (Pty) Ltd |
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TECHNICAL SUMMARY OF

This section provides a technical overview of the proposed amendments¹.

| | |
|-----------------------|----------------------------|
| Technology | Lithium Battery Technology |
| Size of BESS | Up to 4 Hectares |
| Height of BESS | ±3 metres |

Situated at:

| | Latitude | Longitude |
|-------------------|-----------------|------------------|
| North West | 28° 32' 49" | 21° 03' 31" |
| North East | 28° 32' 49" | 21° 03' 39" |
| South West | 28° 32' 56" | 21° 03' 31" |
| South East | 28° 32' 56" | 21° 03' 38" |

LEGISLATIVE COMPLIANCE CHECKLIST

According to Regulation 32(1), the applicant must within 90 days of receipt by the competent authority of the application made in terms of regulation 31, submit to the competent authority—

(a) a report, reflecting—

- (i) an assessment of all impacts related to the proposed change;
- (ii) advantages and disadvantages associated with the proposed change; and
- (iii) measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and

¹ This only includes amendments that fall within the ambit of regulation 31 (in this instance, only the BESS)

(iv) any changes to the EMPr;

This report must be subjected to a public participation process, which had been agreed to by the competent authority, and which was appropriate to bring the proposed change to the attention of potential and registered interested and affected parties, including organs of state, which have jurisdiction in respect of any aspect of the relevant activity, and the competent authority. The draft report was subjected to a public participation process that has been agreed to by the competent authority by means of the approval of a public participation plan. T

he table below summarises the content requirements of such a report, with references to where there the specific requirements have been dealt with in the report.

| Content Requirements, Regulation 32(1)(a) | Reference |
|---|------------|
| Assessment of all impacts related to the proposed change; | Section 6 |
| Advantages and disadvantages associated with the proposed change | Section 7 |
| Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change | Section 8 |
| Changes to the EMPr | Appendix I |

DEFF COMMENT ON AMENDMENT ASSESSMENT REPORT

The competent authority provided comment on the Draft Amendment Assessment Report on 22 September 2020².

These comments and the responses thereto are included in the table below. A copy of this comment is included in Appendix F4.

| Comments | Responses |
|---|--|
| (i) The EAP is required to provide a detailed list of all potential amendments to the EA, which should inter alia recommend additional conditions that must be incorporated into the EA, provide amendments to the existing conditions of the EA by way of either removal and/or amendments as informed by the specialists recommendations. | <p>The full lists of amendments to the EA are reflected in section 6.1 of the application form appended to the Amendment Assessment Report (Appendix J). They are also included in Table 1 of the amendment assessment report.</p> <p>The proposed amendments mostly require changes to the various descriptions in the EA and does not require the removal of any existing conditions.</p> <p>The outcome of the assessment has recommended certain additional conditions that are applicable to the proposed amendments. These conditions are summarised in section 1.4 of the Final Amendment Assessment Report and it is the EAPs recommendation that these be included as conditions of authorisation of the proposed amendments.</p> |
| (ii) The EAP is required to provide a certified copy of the amendment application dated 20 March 2020. The EAP must ensure that the amendments applied for in this amendment application are not a repetition of those issued on the amendment application dated 20 March 2020. | <p>The amendment of 20 March 2020 authorised two key changes to the EA, namely the increase in the generation capacity of the facility and change in contact details of the applicant.</p> <p>This current application proposes amendments associated with the addition of a Battery Energy</p> |

² Received via email on 29 September 2020.

| Comments | Responses |
|---|--|
| | Storage System as well as the correction of the spelling of the farm name only and is not a repetition of any of the amendments applied for or authorised in the previous application. |
| (iii) The Draft EMPr and final facility layout map to be submitted with the final amendment motivation report must include and incorporate all mitigation measures recommended by the specialists. | <p>The Draft EMPr (revision to accommodate the BESS) was appended to the amendment assessment report in Appendix K. None of the specialists identified any mitigations that would spatially affect the layout plan.</p> <p>The recommendations of the specialists have however been incorporated into the EMPr.</p> <p>It must be noted that condition 12 of the EA requires that the Final Site Layout plan be compiled, undergo public participation and be submitted to the Department for approval. This condition will remain, and has not been amended as part of the current application.</p> |
| (iv) The applicant is required to comply with Regulation 39 (1) of the EIA regulations 2014 and submit a written consent from the landowner for the amendment application. | The landowner consent for the proposed amendment is attached in appendix 4 of the application form. |
| (v) The EAP is to ensure that all the amendments applied for do not trigger any listed or specified activity as outlined in Regulation 31 of the EIA regulations, 2014 as amended. | As confirmed in the Technical Design Report, the proposed amendments do not constitute a new listed activity and as such can be considered under the ambit of regulation 31. Most notably the technology considered (lithium battery technology) does not constitute the storage of a dangerous good as per the Departments interpretative circular and as confirmed during the pre-application meeting that was held in respect of the project. |
| (vi) The final motivation report must include specialist input into a risk assessment for the Battery Energy Storage System, and updates to the EMPr to address these additional risks. | The Draft Amendment Assessment Report already includes the risk assessment in Appendix G. This risk assessment includes any specific mitigations identified by the participating specialists and does form part of the EMPr. |
| (b)(i) Please ensure that comments from all relevant stakeholders are submitted to the Department with the final report. This is not limited to the Northern Cape Department of Environment and Nature Conservation, the Department of Agriculture, Land Reform and Rural Development, the South African Civil Aviation Authority (SACAA), the Department of Transport, the !Kheiss Local Municipality. The ZF Mgqawu District Municipality, the Department of Water and Sanitation, the South African National Roads Agency Limited, the South African Heritage Resources Agency (SAHRA), the Department of Mineral Resources, The Department of Environment, Forestry and Fisheries: Directorate Biodiversity and Conservation, the Department of Environment, Forestry and Fisheries: Forestry Branches. | <p>The summary of all comments and responses are included in appendix F2 and all copies of correspondence is included in Appendix F4.</p> <p>Kindly note that the authorised project falls within the Kai !Garib local municipality and not the !Kheiss Local Municipality.</p> |
| (ii) A comments and Response trail must be submitted with the final report. The C&R report must be in a separate document from the main report and the format must be in the table format as indicated in Appendix 1 of this comments letter. Please refrain from summarising comments made by I&APs. All comments from I&APs must be copied verbatim and responded to clearly. Please note that a response such as “noted” is not regarded as an adequate response to I&AP comments. | The comments and response trail (this document) is appended to the Final Amendment Assessment Report in Appendix F2. The format of the comment and response trail utilises the table format suggested by the department in Appendix 1 of their letter. |

| Comments | Responses |
|--|--|
| <p>(iii) Please ensure that all issues raised and comments received during the circulation of the draft report from I&AP's and organs of state which have jurisdiction in respect of the proposed activity are adequately addressed in the final report. Proof of correspondence with the various stakeholders must be included in the final report. Should you be unable to obtain comments, proof should be submitted to the Departments of the attempts that were made to obtain comments. The public participation must be conducted in terms of Regulation 39, 40, 41, 42, 43 and 44 of the EIA regulations 2014 as amended.</p> | <p>Proof of correspondence including all attempts to obtain comments is attached in Appendix F3 and Appendix F4.</p> <p>Kindly note that in terms of regulation 32(1)(aa), the public participation in respect of a part 2 amendment must be undertaken to a level as agreed upon with the competent authority. The mechanism for this was via the submission and approval of a public participation plan. The public participation for this application was therefore undertaken in compliance with the approved public participation plan & regulation 32(1)(aa) and not in compliance with regulation 39 – 44.</p> |
| <p>(iv) The final report must also indicate that this draft report has been subjected to a public participation process.</p> | <p>All records and details of the public participation undertaken are included in Appendices F1 – F6 and is summarised in section 8 of the Final Amendment Assessment Report.</p> |
| <p>(C)(i) The final report must include an environmental sensitivity map indicating environmental sensitive areas, buffer areas and features identified during the assessment process.</p> | <p>No additional environmentally sensitive areas were identified by the EAP or the participating specialists. The sensitivity plans shown in Appendix C (Layout Report) in the Final EIR remain unchanged. As mentioned in the assessment, the proposed BESS is situated within the authorised project footprint and does not encroach into any these sensitive areas (which were already excluded from the development footprint in the original EIA).</p> |
| <p>(ii) The final report must provide the technical details of the facility in a table format as well as their descriptions and/or dimensions.</p> | <p>The final Amendment Assessment report includes the technical summary of the proposed amendments on page ii of the report. This includes technology, size and height of the proposed BESS as well as the co-ordinates of the proposed location.</p> |
| <p>(iii) A copy of the final layout map must be submitted with the final report. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g. roads. The layout map must include the following: The location of the BESS All supporting infrastructure e.g roads (existing and proposed); The location of sensitive environmental features on site e.g. CBA's, heritage sites, wetlands, drainage lines etc. that will be affected. Buffer Areas, All "no-go" areas The above map must be overlain with a sensitivity map and a cumulative map which shows neighbouring renewable energy developments and existing grid infrastructure.</p> | <p>Kindly note that condition 12 of the Original EA, requires that a final site layout plan be submitted to the Department for approval prior to commencement of construction. The applicant is not applying for the removal of this condition and as such will have to comply with still have to comply with this condition.</p> <p>The location of the BESS and supporting infrastructure is shown in the site layout plans attached in Appendix D. The location and scale of other sensitive features such as CBA's, Wetlands, Drainage lines Etc are not visible at the scale of the Site layout plans. The location of the proposed amendments (i.e. the BESS) in relation to these features is however shown in the plans attached in appendix B. As per the EMP, all areas outside of the perimeter fence of the facility are considered no go areas. There are not any no go areas in proximity to the proposed amendments and as such the no go areas defined in the original EIA process remain unchanged.</p> |

| Comments | Responses |
|--|--|
| | A cumulative impacts map is included in section 6.6 of the Final BAR. |
| (iv) Google Maps will not be accepted. | It has been confirmed with the Applicant that the Site layout plan in Appendix C was produced using ArcMap, the Cape EAPrac maps attached in Appendix A and B were produced in Arc GIS. None of the maps included are google maps (except for excerpts in text) |
| (v) The final amendment motivation report must include an environmental sensitivity map indicating environmental sensitive areas and features identified during the assessment process. | No additional environmentally sensitive areas were identified by the EAP or the participating specialists. The sensitivity plans shown in Appendix C (Layout Report) in the Final EIR remain unchanged. As mentioned in the assessment, the proposed BESS is situated within the authorised project footprint and does not encroach into any these sensitive areas (which were already excluded from the development footprint in the original EIA). |
| (d) (i) The maps used within the specialist studies must comply with comment c(i) of this letter. | The only maps included in the specialist studies were in the ecological impact assessment in Appendix E1. The sensitive features identified in this plan incorporate the buffers. |
| (ii) The EAP must provide confirmation that all specialists were provided with the same request of the proposed amendments as well as the terms of reference for all of the identified specialist studies include the following: A detailed description of the study's methodology; indication of the locations and descriptions of the development footprint, and all other associated infrastructure that they have assessed and are recommending for all authorisations. Provide a detailed description of all limitations to the studies. All specialist studies must be conducted in the right season and providing that as a limitation will not be allowed. Please note that the department considers a "no-go" area, as an area where no development of any infrastructure is allowed; therefore, no development of associated infrastructure, including access roads is allowed in the no-go areas Should the specialists definition of no go area differ from the departments, this must be clearly indicated. All specialist studies must be final, and provide detailed / practical mitigation measures and recommendations, and not recommend further studies be completed post EA. Should specialists recommend specific mitigation measures for identified turbine positions, these must be clearly indicated. Clearly defined cumulative impacts and where possible, the size of the identified impact must be quantified and indicated. A detailed process flow to indicate how the specialists recommendations, mitigation measures and conclusions from various similar developments in the area were taken into consideration in the assessment of cumulative impacts and when the conclusion and mitigation measures were drafted for this project. Identified cumulative impacts associated with the proposed development must be rated with the significance rating methodology used in the process. The significance rating must also inform the need and desirability of the proposed development. A cumulative impact environmental statement on whether the proposed development must proceed. | The terms of references provided to the specialists are included in appendix K. All specialists were provided with the same terms of reference applicable to their discipline. Cumulative impacts are considered in section 6.6 of the report. Cumulative impacts in relation to an activity, means the past, current, and reasonably foreseeable future impact of an activity. Considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts. The cumulative impacts of the overall facility (i.e. an activity) were considered and assessed in the original EIA. This current assessment considers the cumulative impacts associated with the amendments only. |
| (iii) Should the appointed specialists specify contradicting recommendations, the EAP must clearly indicate the most reasonable recommendation and substantiate this with defensible reasons and where necessary, include further expert advice. | No contradicting recommendations were made by participating specialists. All participating specialists concurred that all recommendations made in their original studies would remain applicable to the amendment. |

| Comments | Responses |
|---|---|
| <p>(e)(i) Please be informed that the following content must be incorporated within the EMPr's as indicated in Appendix 4 of the EIA regulations 2014, as amended:</p> <p>(a) Details of the EAP who prepared the EMPr and the expertise of the EAP to prepare and EMPr, including a curriculum vitae.</p> <p>(b) A map at an appropriate scale which superimposes the proposed activity, its associated infrastructure, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.</p> <p>(c) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –</p> <ul style="list-style-type: none"> - Planning and design; - Pre construction activities; - Construction activities; - Rehabilitation and; - Operation <p>(d) A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) of appendix 4 of the EIA regulations 2014, as amended, will be achieved.</p> <p>(e) Where applicable, include actions to – avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation.</p> <p>(f) Comply with any prescribed environmental management standards and practices)</p> <p>(g) Comply with any applicable provisions of the Act, regarding closure, where applicable.</p> <p>(h) Comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable.</p> <p>(I) The method of monitoring the implementation of the impact management actions.</p> <p>(J) The frequency of monitoring the implementation of the impact management actions.</p> <p>(k) An indication of the persons who will be responsible for the implementation of the impact management actions.</p> <p>(l) The time periods which the impact management actions must be implemented.</p> <p>(m) The mechanism for monitoring compliance with the impact management actions</p> <p>(n) A programme for reporting on compliance, taking into account the requirements as prescribed by the regulations.</p> | <p>The content listed in this requirement has been incorporated into the EMPr. A checklist is included in the EMPr referencing where this information is included.</p> <p>It must be noted that condition 14 of the EA requires that the Final EMPr be submitted to the Department for approval prior to the commencement of construction. This condition remains in force.</p> |
| <p>(f) Please ensure that all mitigation recommendations are in line with applicable and most recent guidelines.</p> | <p>The mitigation measures detailed by the participating specialists are applicable to the most recent guidelines in respect of their specific disciplines.</p> |

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FINAL AMENDMENT ASSESMENT REPORT

1 INTRODUCTION

Cape EAPrac has been appointed by Dyasonsklip Solar Energy Facility 1 (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) and Environmental Management Programme (EMPr), in terms of the National Environmental Management Act (NEMA, Act 107 of 1998), for the authorised 'Dyasonsklip Solar Energy Facility 1' solar photovoltaic (PV) facility near Upington and Keimoes in the Northern Cape Province of South Africa.

The total authorised generation capacity of Dyasonsklip Solar Energy Facility 1 is up to 100 Megawatts (MW). The applicant intends amending the EA and EMPr to provide for a Battery Energy Storage System (BESS) within the authorised footprint of the facility.

The purpose of this **Amendment Assessment Report** is to describe the environment that will be affected by the proposed BESS and to identify and assess any resulting impacts that may result from the addition of a BESS.

The Draft Amendment Assessment Report along with all the the supplementary appendices was made available to all registered and potential Interested and Affected Parties (I&AP's) for a 30 day comment period extending from **08 September 2020 – 08 October 2020**.

All comments received on the Draft Amendment Assessment Report have been considered, addressed and incorporated into a Final Amendment Assessment Report that is herewith submitted to the DEFF for consideration and decision making.

1.1 PROPOSED AMENDMENTS

The applicant wishes to amend the EA to include a BESS³ within the authorised footprint of the Facility. In order to affect this proposal, the following amendments to the Environmental Authorisation will be required.

Table 1: Proposed amendments to the Environmental Authorisation for Dyasonsklip Solar Energy Facility 1.

| Amendment 1 |
|--|
| Page 6 of the EA lists the infrastructure associated with the PV Development as follows: |

³ Other than the amendment to include the BESS, the applicant is including application to correct typographical errors in the spelling of the affected farm portion.

The proposed PV facility would consist of the following:

- Mounting systems for the PV arrays and related foundations;
- Internal cabling and string boxes;
- Inverter stations;
- An on-site substation (including a feed-in transformer to allow the generated power to be connected to Eskom's electricity grid);
- An overhead transmission power line to distribute the generated electricity from the on-site substation to the newly approved Eskom Upington MTS Substation (this is assessed in a separate basic assessment report).
- Administration / office and security (gate house);
- Control room & workshop;
- Visitor centre;
- Ablution / change room and warehouse / storeroom;
- A laydown area of approximately 3ha;

This should be amended by the addition of the following:

- A Battery Energy Storage System with a footprint of up to 4 Hectares.

Amendment 2

Page 7 of the EA lists the Technical Details of the project as follows

| Component | Description/ Dimensions |
|--|---|
| Location of the site | Remainder of the Farm Dyasonsklip 454, is located in the ZF Mgcawu district of the Northern Cape Province, within the jurisdiction area of the Kai Garib Local Municipality. The property is located approximately 22km west southwest of Upington and 15km northeast of Keimoes. |
| PV Panel area | 180 ha (total development footprint not exceeding 240 ha) |
| SG Codes | C02800000000045400000 |
| Site access | The site will be accessed by one of two existing road entrances from the N14 North; via the farm's existing entrance or the existing entrance of the adjacent property (Abengoa Khi Solar One CSP Project). |
| Export capacity | 75 MW |
| Proposed technology | Photovoltaic panels (including conventional photovoltaic and concentrated photovoltaic.) |
| Height of installed panels from ground level | <10m |
| Width and length of internal roads | Main internal road - width: 6m, approximate length:25 km |

This table should be amended by the addition of:

| | |
|--|--------------------------|
| Capacity of Battery Energy Storage System | Up to 400 Megawatt Hours |
| Footprint of Battery Energy Storage System | Up to 4 Hectares |

Amendment 3

Condition 1 on page 8 of the EA states (note: the 75MW generation capacity in this condition was amended to 100MW as part of the 20 March 2020 Approval):

- The construction of the Dyasonsklip 75MW Solar Energy Facility 1 on the Remainder of the Farm Dyasonsklip 454 near Upington within the Kai! Garib Hills Local Municipality in the Northern Province is approved as per the above geographic coordinates.

This should be amended to:

- The construction of the Dyasonsklip 100MW Solar Energy Facility 1 on the Remainder of the Farm Dyason's Klip 454 near Upington within the Kai! Garib Local Municipality in the Northern Cape province as approved as per the above geographic coordinates.

Amendment 4

The cover page of the EA reflects the affected property as follows:

| | |
|------------------------------|--|
| Location of activity: | <p><i>Remainder of the Farm 454</i></p> <p><i>Dyasonsklip</i></p> <p><i>Kai! Garib Local Municipality</i></p> <p><i>ZF Mgcawu District Municipality</i></p> <p><i>Northern Cape Province</i></p> |
|------------------------------|--|

This should be amended to:

| | |
|---------------------------|--|
| Location of the activity: | <p>Remainder of the Farm 454 Dyason's Klip</p> <p>Kai !Garib Local Municipality</p> <p>ZF Mgcawu District Municipality</p> <p>Northern Cape Province</p> |
|---------------------------|--|

Amendment 5

The table on page 6 of the EA details the affected property as:

| | |
|----------------------|--|
| Location of the site | <p>Remainder of the Farm Dyasonsklip 454, is located in the ZF Mgcawu district of the Northern Cape Province, within the jurisdiction area of the Kai Garib Local Municipality. The property is located approximately 22km west southwest of Upington and 15km northeast of Keimoes.</p> |
|----------------------|--|

This Description of the property should be amended to:

Remainder of the Farm Dyason's Klip 454, is located in the ZF Mgcawu district of the Northern Cape Province, within the jurisdiction of the Kai !Garib Local Municipality. The property is located approximately 22km southwest of Upington and 15km northeast of Keimoes.

Amendment 6

The description of the Authorised Area on page 6 of the EA states (note, the generation capacity reflected here was amended to 100MW through the amendment authorised on 20 March 2020:

- for the proposed 75MW Dyasonsklip Solar Energy Facility 1 and its associated infrastructure located on the Remainder of the Farm Dyasonsklip 454, Gordonia RD within the Kai Garib Local Municipality in the Northern Cape Province, hereafter referred to as "the property"

This should be amended to:

- for the proposed 100MW Dyasonsklip Solar Energy Facility 1 and its associated infrastructure on Remainder of the Farm 454 Dyason's Klip, near Upington and Keimoes, Northern Cape Province, hereafter referred to as "the property"

1.2 REASONS FOR PROPOSED AMENDMENTS

The section below details the reasons why the applicant wishes to amend the environmental authorisation and environmental management programme.

1.2.1 Amendment 1, 2 and 3 - Battery Energy Storage System (BESS)

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 and wind turbines both 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-ion installations globally, have stimulated interest in combining renewable energy generation with energy storage to provide dispatchable energy (energy on demand) and reliable capacity.

1.2.2 Amendment 4, 5, 6 – Corrections to Farm name.

Amendments 4, 5 and 6 are purely to correct the spelling of the farm name to align with the spelling in the Title Deed.

1.3 SPECIALIST INPUT

This Amendment assessment report includes input from the following specialists.

- Terrestrial Ecology – Mr Simon Todd
- Botany – Mr Simon Todd
- Agricultural – Mr Christo Lubbe
- Palaeontology – Dr John Almond
- Archaeology – Dr Lita Webley
- Visual – Mr Stephen Stead

These specialists provided a statement on the likely impacts associated with the construction and operation of a BESS that covers a maximum footprint of 4ha.

The terms of reference provided to the specialists are attached in Appendix K. In summary, the participating specialists were requested to prepare a summary to confirm the following key items:

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

These specialists provided a statement on the likely impacts associated with the construction and operation of a BESS that covers a maximum footprint of 4ha. All the specialist statements are attached in Appendix E.

1.4 RECOMMENDATION OF THIS ASSESSMENT REPORT

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. 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;
2. The applicant must compile and implement a thermal management and monitoring programme. This programme should be completed prior to the operation of the BESS;
3. During the construction phase of the project, first responders from Upington (such as fire fighters and paramedics) must be given appropriate training on dealing with an unlikely situation that may occur as a result of the BESS; such training must be provided by the technology suppliers or an appointed service provider;
4. 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;
5. In the unlikely event of a thermal runaway, any contamination of land 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;
6. The BESS Addendum to the EMPr must be adopted and implemented for the life cycle of the project; and
7. That detailed technology specific risk assessment be compiled and submitted to the competent authority for authorisation (once the preferred technology service providers are decided upon).

2. OVERVIEW OF THE PROPOSED ACTIVITY AFFECTED BY THE AMENDMENT.

As noted above, the amendment relates to the inclusion of a BESS within the authorised footprint. A BESS technical document is included in Appendix E7, from which the following overview of the project is summarised.

2.1 TECHNOLOGY

Unlike conventional energy storage facilities, such as pumped hydro, a BESS has the advantage of being flexible in terms of site location and sizing. Therefore, they can be incorporated into, and placed in close proximity, to a wind or solar facility. They also have the advantage of being easily scaled and designed to meet specific demands.

Different BESS technologies, such as lithium-ion (Li-ion), zinc hybrid cathode, sodium ion, flow (e.g. 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 the declining costs, Li-ion technology now accounts for more than 90% of battery storage additions globally (IRENA, 2019).

Therefore, in line with the above, it is proposed that Lithium Battery Technologies, such as Lithium Iron Phosphate (LFP) or Lithium Nickel Manganese Cobalt oxides (NCM), be considered as the preferred technology in this amendment process.



Figure 1: Tesla's Megapack Li-ion Battery (Modular System).

2.2 LOCATION AND SIZE OF THE BATTERY STORAGE AREA

The battery storage facility will be constructed within the authorised footprint, adjacent to the on-site substation and will cover an area of up to 4 ha, as per the figure below (please also refer to the full scale layout plans attached in Appendix D).



Figure 2: Site Layout plan, showing the proposed position of the BESS (pink polygon) within the authorised footprint.

2.3 GENERAL COMPONENTS

The exact design will depend on the manufacturer, however traditional utility-scale Li-ion battery storage facilities 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 480-V inverter output to 12–66 kV).

The figures below illustrates the components that generally make up the primary battery system,

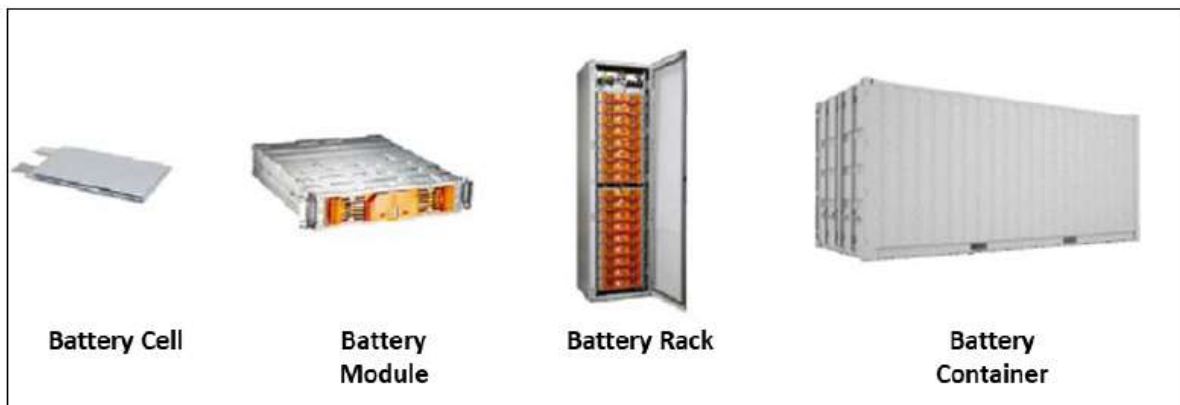


Figure 3: Typical Battery System Components.

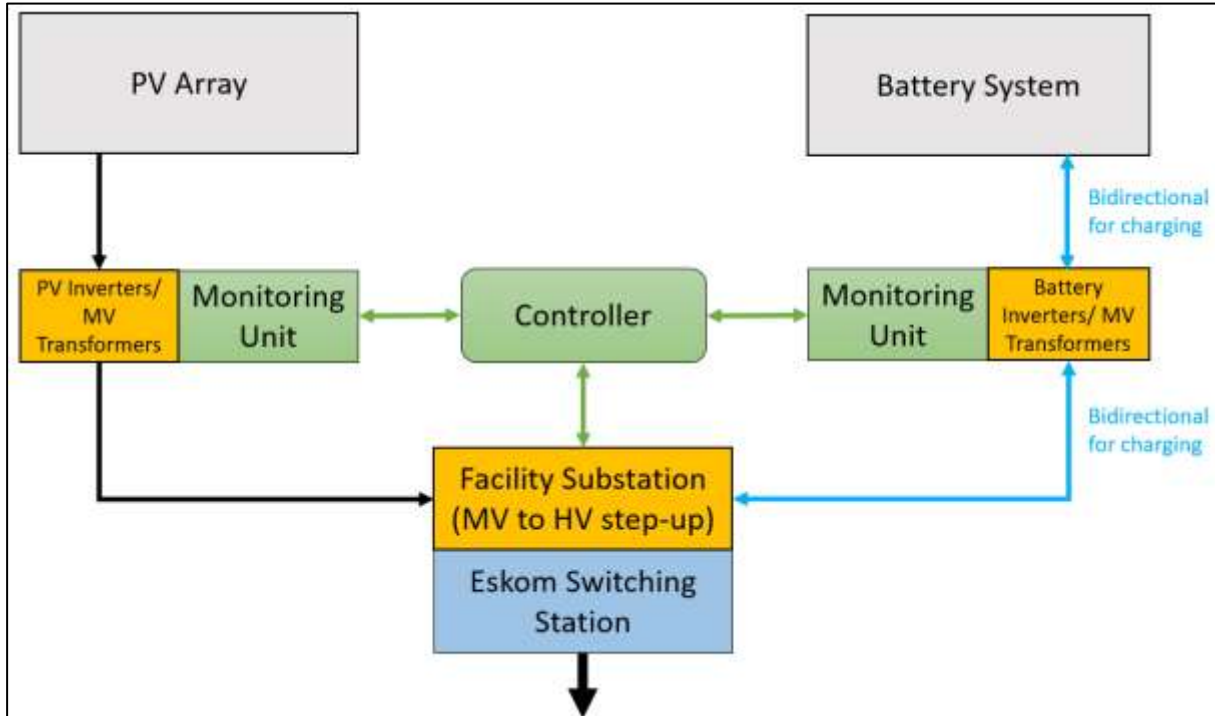


Figure 4: Typical flow diagram of PV plant with battery storage



Figure 5: Example of a typical Battery Energy Storage System - Pivot Power's proposed lithium-ion battery in Kemsley, Kent.

3. PROJECT NEED AND DESIRABILITY

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.

The need and desirability of the originally authorised portions of the project does not differ from what was originally assessed and authorised.

3.1 SITE SELECTION PROCESS

The site and footprint selection process was considered in detail during the Basic 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 the Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP) or otherwise the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP).

Table 2: Preliminary implementation schedule.

| | Description | Timeline |
|---|-------------------------------|----------------------|
| 1 | RFP Release | 24 August 2020 |
| 2 | BID Submission | 24 November 2020 |
| 3 | Preferred Bidder Announcement | 15 December 2020 |
| 4 | Financial Close | 30 April 2021 |
| 5 | Construction | May 2021 – June 2022 |
| 6 | Commissioning | June 2022 |

The table above clearly depicts the dependence of the project on the RMIPPPP's timelines. Any delay or acceleration within the RMIPPPP 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 Assessment report for Dyasonsklip Solar Energy Facility 1 and as such, it is not re-described in this amendment assessment report.

It is important to note that the proposed amendments within the authorised footprint do not on their own constitute a listed activity and as such can be considered under the ambit of an amendment under regulation 31.

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 Dyasonsklip Solar Energy Facility 1 including any additional considerations applicable to the amendment of the EA to include the BESS.

| Legislation | Additional considerations for Dyasonsklip Solar Energy Facility 1 |
|---|---|
| NATIONAL LEGISLATION | |
| The Constitution of the Republic of South Africa | No additional considerations applicable to the 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 will however be 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 | |

| Legislation | Additional considerations for Dyasonsklip Solar Energy Facility 1 |
|---|---|
| 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) | No additional considerations applicable to the amendment. SKA SA provided comment on the facility confirming a low risk to SKAsa. It is likely that this low risk will remain for the amendment. SKAsa will however be 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. |
| 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.

6. ASSESSMENT OF IMPACTS ASSOCIATED WITH THE PROPOSED AMENDMENTS

As agreed to with the competent authority during the pre application meeting, this amendment assessment is supplemented with statements from the following specialists:

- Terrestrial Ecology (Todd, 2020)
- Botany (Todd, 2020)
- Agricultural (Lubbe, 2020)
- Palaeontology (Almond, 2020)
- Archaeology (Webley, 2020)
- Visual (Stead, 2020)

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 namely:

1. The addition of an up to 4ha BESS within the authorised footprint;

The remaining amendments are not envisioned to result in any additional physical environmental impacts for the following reasons:

1. Correction of the Spelling of the Farm Name - This amendment is of an administrative nature only.

The findings of each of these specialists relating to the potential impacts of the BESS are summarised in the following sections. Please also refer to the full statements attached in Appendix E1 – E6

Discussion of general impacts associated with the proposed amendments are discussed in section 6.1 below and the outcome of the specialist statements is included in section 6.2.

6.1 DISCUSSION OF GENERAL IMPACTS.

One of the most prevalent impacts associated with PV development is the loss or fragmentation of habitat due to the large surface area that they occupy. The overall impact on habitat transformation associated with the addition of the BESS and relocation of the substation is deemed to neutral, as the overall footprint of the facility will remain unchanged.

The environmental risk associated with BESS systems almost always relate to a thermal event and fire, spillage or emissions associated with such an event. The high level risk assessment⁴ attached to this assessment report provides management and mitigation measures to ensure that such a risk can be mitigated to a very-low level, with a low likelihood of occurring.

6.2 SPECIALIST ASSESSMENTS

The specialist statements referred to above are attached in Appendix E1 – E6 and the findings of each of these specialists relating to the potential impacts of the BESS are summarised in the following sections.

6.2.1 Terrestrial Fauna Impacts

An Ecological Statement was undertaken by Simon Todd. A copy of this assessment is attached in **Annexure E1**. The ecological specialist concluded the following with regards to the envisioned impact of the proposed addition of the BESS.

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 - low 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. The original impacts associated with the Dyasonsklip Solar Energy Facility 1 are illustrated in the Table below. Based on the footprint and technical specifications of the BESS as provided for this statement, there are no changes to the assessed impacts that are warranted based on the inclusion of the BESS into the Dyasonsklip Solar Energy Facility 1.

⁴ It must be noted that the Risk assessment attached to this assessment must be replaced with a detailed technology specific risk assessment once the final technology service providers have been selected.

Table 2. The pre- and post-mitigation ecological impacts associated with the Dyasonsklip Solar Energy Facility 1 as originally assessed which remain applicable.

| Nature of impact | Significance and Status | |
|--|-------------------------|---------------------|
| | Without Mitigation | With Mitigation |
| Impacts on vegetation and listed or protected plant species resulting from construction activities | Medium-High Negative | Medium Negative |
| Direct Faunal Impacts During Construction | Medium Negative | Medium-Low Negative |
| Avifaunal impacts due to habitat loss and construction activities | Medium-High Negative | Medium-Low Negative |
| Soil Erosion Risk During Construction | Medium Negative | Low Negative |
| Alien Plant Invasion Risk During Operation | Medium Negative | Low Negative |
| Soil Erosion Risk During Operation | Medium Negative | Low Negative |
| Faunal impacts during operation: | Medium-Negative | Low-Negative |
| Reduced ability to meet conservation obligations & targets due to cumulative habitat loss | Low Negative | Low Negative |
| Impact on broad-scale ecological processes due to cumulative loss and fragmentation of habitat | Medium Negative | Low Negative |

Potential for Novel Impacts Associated with the BESS

The BESS consists of battery storage units in containerised solutions 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.

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.

6.2.2 Agricultural Impacts

An Agricultural Impact Statement was undertaken by Christo Lubbe. A copy of this assessment is attached in **Annexure E2**. As part of this statement, the agricultural specialist confirmed that the BESS:

1. will not change or increase the nature or severity of any of the agricultural impacts originally identified and reported in 2013;
2. Will have no additional impacts to those identified previously in his 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.

The rationale for these findings are 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 into drainage lines or towards pans.
- During construction, spillage of fuel or concrete is possible, as with the construction of all other components of the facility. Mitigation measures prescribed will be the same in this case.
- It is likely that the batteries will require solid foundations like concrete pads or steel decks, which are not different from the foundations for the pylons of the connection line, foundations for auxiliary buildings and the substation.

The specialist furthermore confirmed that from an agricultural view point, there are no additional management or mitigation measures required for the BESS.

The findings of the original agricultural study indicate that the site's agricultural potential is low. Due to poor soil properties and extreme climatic conditions. Farming activities consist of grazing for cattle, but due to the low grazing potential of the region, the loss of the small area of grazing land is negligible. The specialist furthermore concluded that the proposed PV facility will have a very small impact on agriculture, locally and on site, and will have no influence on the current commercial farming in the region. This statement applies equally to the addition of the BESS.

6.2.3 Heritage Impacts

A Heritage Impact Statement was undertaken by Dr Lita Webley. A copy of this assessment is attached in **Annexure E3**. The following findings relating to the heritage impact of the BESS were confirmed by the specialist.

The 2014 layout has avoided impacts to majority of heritage sites (including archaeological sites) identified in the HIA (November 2014). No new heritage impacts have been identified as a result of the proposed BESS. The proposed battery facility will be in proximity to archaeological sites D012, D013 and L019 (indicated with red dots).

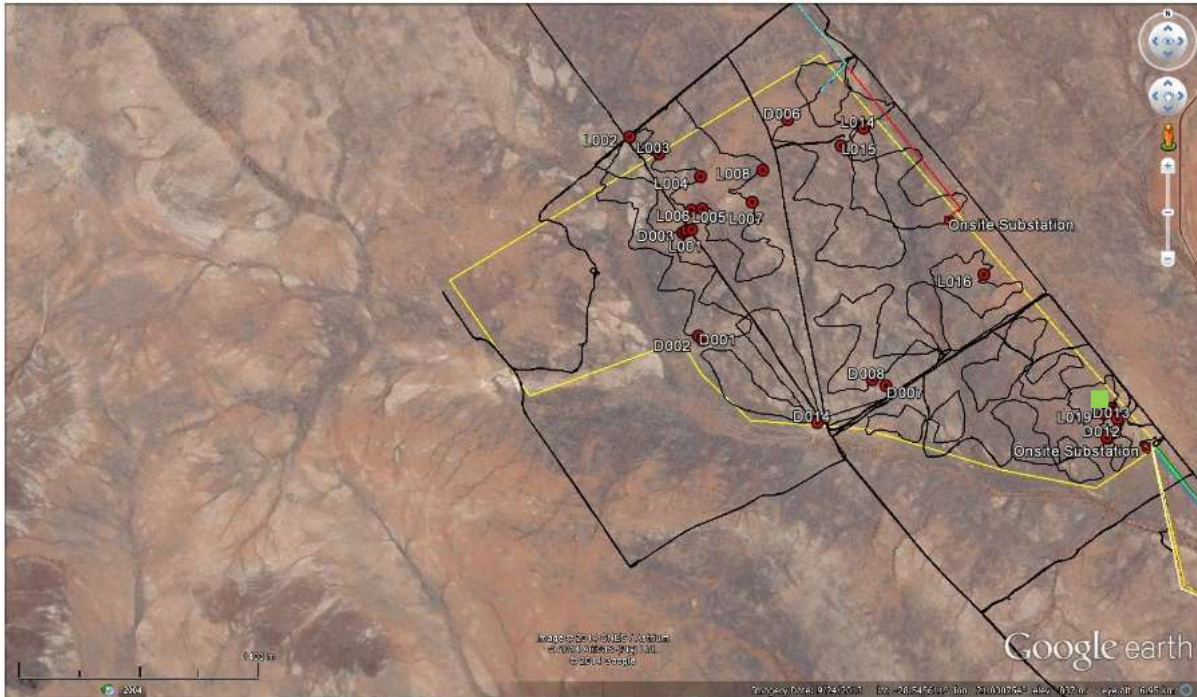


Figure 6: Location of BESS (green) in relation to the Archaeology survey paths and recorded sites (Webley 2020)

The sites were respectively listed as scatters of quartz and banded ironstone artefacts (MSA) near a small dry stream (D012 and D013) and are of low significance. L019 are described as two very small cairns (only 50cm x 50cm in size). It seemed unlikely that these cairns represented burials due to their small size. However, they were identified as potentially having a “high” significance, since burials are always considered to be sensitive and of high significance.

The SAHRA Final Comment (25 March 2015) confirms that it is unlikely that the stone cairns represent burials.

Since grave sites are located under the soil surface and are only exposed once the construction commences, it is possible, although unlikely, that the cairns may represent burials. It is essential that the EMPr makes provision for the recovery of archaeological material which may be uncovered during construction. The impacts identified and assessed previously remain unchanged.

The following recommendations were made in the HIA report which was submitted to the South African Heritage Resources Agency in 2014, which remain unchanged:

- If any archaeological remains, including human remains, are uncovered during construction, then work must stop in that area and the responsible heritage authorities (SAHRA) must be notified.

The Archaeology Specialist indicated that the following additional recommendation should be included in the EMPr amendment for the BESS:

- The Environmental Control Officer must be present during the ground clearance of the BESS to ensure that any archaeological sites/graves can be identified and that suitable mitigation measures can be implemented as required.

The specialist concluded that her impact ratings for the proposed development have not been changed with the proposed addition of a BESS.

Table 4: Archaeology Impacts relating to the Dyasonsklip Solar Energy Facility 1, which remain unchanged by the addition of the BESS.

| Potential impact to pre-colonial Archaeology | | | | | | | | |
|--|------------|------------|-------------------|-------------|-------------|--------------|----------|------------|
| | Extent | Intensity | Duration | Consequence | Probability | Significance | Status | Confidence |
| Without mitigation | 1 Local | 1 Local | 3 Irreversible | 5 Low | Improbable | Very Low | Negative | High |
| With mitigation | 1 Low | 1 Low | 3 Irreversible | 5 Low | Improbable | Very Low | Neutral | High |
| Potential Impacts to Graves | | | | | | | | |
| | Extent | Intensity | Duration | Consequence | Probability | Significance | Status | Confidence |
| Without mitigation | 1 Local | 1 High | 3 Irreversible | 5 Low | Probable | High | Negative | High |
| With mitigation | 1 Low | 1 Low | 3 Irreversible | 5 Low | Improbable | High | Neutral | High |

6.2.4 Palaeontological Impacts

A Palaeontological Impact Statement was undertaken by Dr John Almond. A copy of this assessment is attached in **Annexure E4**. As part of this statement, the palaeontology specialist confirmed the following:

A palaeontological heritage assessment (PIA) of the Dyasonsklip Solar Energy Facility 1 near Upington was submitted by the specialist in 2014. This study concluded the following regarding the palaeontological sensitivity of the project area:

1. The igneous and metamorphic Precambrian basement rocks underlying the Dyasonsklip Solar Energy Facility 1 study area at depth are entirely unfossiliferous.
2. The overlying aeolian sands and stream gravels of the Kalahari Group mantling the older bedrocks are generally of low palaeontological sensitivity.

It was concluded that the proposed Dyasonsklip Solar Energy Facility 1 near Upington, including the BESS, is unlikely to have significant impacts on local palaeontological heritage resources.

6.2.5 Visual Impacts

A Visual Impact Statement was undertaken by Mr Stephen Stead of VRMA. A copy of this assessment is attached in **Annexure E5**.

This visual statement confirmed that due to the relative remoteness of the locality and some topographic screening, no sensitive receptors were identified for the site.

As such, the visual exposure and sensitivity of the landscape to the proposed BESS is defined as **Low**. Based on the VRM methodology, the scenic quality of the area is defined as Medium.

There is a good policy fit for the Dyasonsklip Solar Energy Facility 1 (located within the REDZ7), and the region already depicts a number of large-scaled renewable energy projects that define the sense of place.

Thus, the findings of this visual statement are that the BESS development for Dyasonsklip Solar Energy Facility 1 is unlikely to result in the loss of significant visual and scenic resources, and as such should be allowed to proceed provided that the mitigation measures detailed in the original VIA are implemented.

6.3 CUMULATIVE IMPACT ASSESSMENT

The cumulative impact of the facility as a whole was considered and assessed in detail in the previous Environmental Impact Assessment Process. The main cumulative impact assessed in the EIA process was the reduced ability to meet conservation obligations and targets due to cumulative habitat loss and impact on broad-scale ecological processes due to cumulative loss and fragmentation of habitat. Both of these cumulative impacts were rated as low. 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 impacts nor will it change those previously assessed.

A map showing the proposed BESS in relation to adjacent projects is included below.

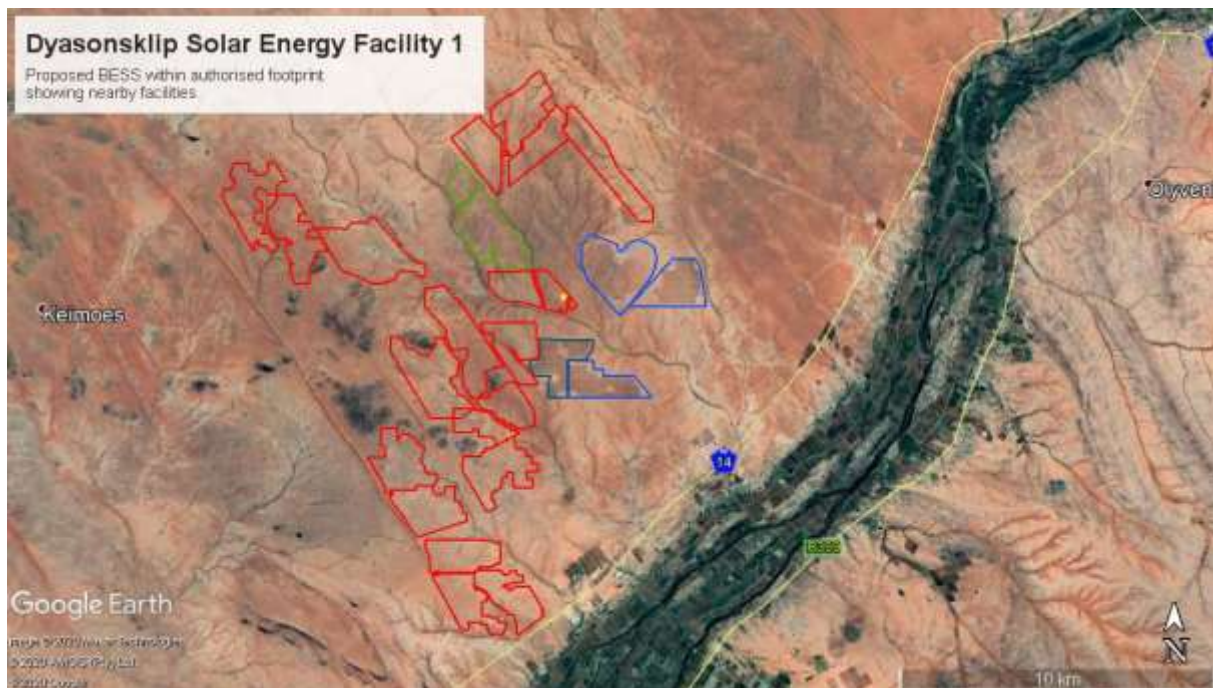


Figure 7: Showing proposed BESS (yellow polygon) in relation to Constructed Projects (Blue Polygons), Authorised Projects (Red Polygons) and Projects where EIA is in Process (Green Polygons).

6.4 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 5: Comparative summary of the significance of impacts associated with Dyasonsklip Solar Energy Facility 1 as authorised and those associated with the addition of the BESS.

| Nature of Impact | Significance of Impact as Authorised | Overall significance of impact, including BESS Amendment |
|-------------------------------------|--------------------------------------|--|
| Impact on Botanical Components | Low – Medium Negative | Low – Medium Negative |
| Impact on Faunal Components | Low – Medium Negative | Low - Medium Negative |
| Impact on Heritage Resources | Low Negative | Low Negative |
| Impact on Archaeological Resources | Low Negative | Low Negative |
| Impact on Paleontological Resources | Low Negative | Low Negative |
| Impact on Hydrological Resources | Medium-Low Negative | Medium - Low Negative |
| Visual Impact | Low Negative | Low Negative |
| Impact on Agricultural Resources | Low Negative | Low Negative |
| Economic Impact | High Positive | High Positive |
| Social Impact | High Positive | High Positive |

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

6.5 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 surface water run-off associated with the facility as a whole but not to such an extent that the overall impact significance would increase.

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 for each of the proposed amendments.

Table 6: Advantages and Disadvantages of the proposed amendments.

| Advantages of Proposed Amendment | Disadvantages of Proposed Amendment |
|---|--|
| Inclusion of BESS | |
| <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> |
| Correction of Farm Name | |
| <p>This will eliminate any ambiguity on the applicability of the EA, as the Farm name will be identical to that reflected on the Title Deed</p> | <p>None identified</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. MITIGATION MEASURES

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 the nearest major centres of Uppington and Keimoes (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.
- The Environmental Control Officer must be present during the ground clearance of the BESS to ensure that any archaeological sites/graves can be identified and that suitable mitigation measures can be implemented as required.
- 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 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.

9. PUBLIC PARTICIPATION PROCESS

A public participation plan has been compiled and approved by the competent authority.

The full details of the public participation and proof of compliance with the approved public participation plan are included in Appendices F1 to F7.

9.1 PUBLIC PARTICIPATION PLAN

This plan was submitted in compliance with regulation GNR660 published on 05 June 2020 in terms of the Disaster Management Act (57/2002) and titled: Directions Regarding Measures to Address, Prevent and Combat the Spread of COVID-19 Relating to National Environmental Management Permits and Licences. In compliance with section 5.1 and annexure 2 of these regulations, a public participation plan must be presented to the competent authority for approval prior to implementation.

This application is for a part 2 amendment of an existing EA and is submitted in terms of regulation 31. The public participation requirements for a part 2 amendment are contained in regulation 32(1)(aa), which requires that the report (i.e. amendment assessment report) be subjected to a public participation process, which had been agreed to by the competent authority, and which was appropriate to bring the proposed change to the attention of potential interested and registered interested and affected parties, including organs of state, which have jurisdiction in respect of the relevant activity and the competent authority.

Cape EAPrac's proposal to comply with regulation 32(11)aa of the NEMA EIA regulations and Regulation 660 in terms of the disaster management act is as follows:

An amendment assessment report will be compiled to assess the impact of the addition of a Battery Energy Storage System (BESS) within the footprint authorised for the project. This Amendment Assessment Report will include:

1. Statements from all participating specialists confirming whether or not the addition of the BESS will change the nature or impact of any of the impacts that were assessed as part of specialist studies.
2. Statements from all participating specialists to confirm whether or not the addition of a BESS within the assessed footprint will result in any additional impacts in respect of their particular specialist discipline.
3. Statements from participating specialists to confirm whether any additional management actions or mitigations are applicable to the addition of a BESS.
4. A BESS technical study.
5. A High-level BESS risk assessment.
6. An addendum to the existing EMPr (incorporating an application to amend the existing EMPr) to incorporate additional management outcomes and actions associated with the BESS.

Notification of the availability of the amendment assessment report (incorporating points 1-6 above) will be sent to the following parties:

- (a) the competent authority;
- (b) every State department that administers a law relating to a matter affecting the environment relevant to an application for the amendment of an environmental authorisation;
- (c) all organs of state which have jurisdiction in respect of the activity to which the application for amendment relates;
- (d) all I&AP's that were registered as part of the original EIA process;
- (e) all I&AP's that were registered on other EIA's that took place on the same properties; and
- (f) all neighbouring property owners.

The amendment assessment report will be accessible to the abovementioned parties via the following mechanisms:

1. The competent authority will be provided copies of the applications and assessment report via their file upload portal.
2. All State Departments and Organs of State who have online submission platforms (e.g. SAHRA via their SAHRIS system) will receive copies of the reports via these platforms.
3. The digital copy of the documentation that will be available on the Cape EAPrac website.
4. A download link (via dropbox or sharepoint) will be provided to all I&APs.
5. All notification letters will include a copy of the executive summary of the Amendment Assessment Report.
6. The ward councillor will be approached for assistance to distribute notification letters along with the executive summaries via their communication channels (community WhatsApp groups, social media and physical communiques).
7. I&AP's that do not have access to digital platforms will be provided with printed hardcopies of the executive summary and any specialist reports that they may have interest in. Such copies will be provided by courier or postal service.
8. Potential and registered I&APs will be informed that copies of the documentation can be provided via postal or courier services.

Dale Holder

From: Muhammad Essop <MEssop@environment.gov.za>
Sent: 04 August 2020 10:38 AM
To: Dale Holder; Mmamohale Kabasa
Subject: RE: Submission of PP Plans for RE Capital 3c and DKSEF1
Attachments: Public Participation Plan DK SEF 1.pdf; Public Participation Plan RE Capital 3C.pdf

Dear Dale.

The PP plans for:

DEFF Reference (RE Capital 3C): 14/12/16/3/3/2/538/2

DEFF Reference (Dyasonsklip Solar Energy Facility 1): 14/12/16/3/3/2/705

and attached is hereby approved.

Muhammad Essop

Assistant Director – Priority Infrastructure Projects

Figure 8: Excerpt of Email from DEFF approving the public participation plan for RE Capital 3C amendment.

9.2 NOTIFICATION OF AVAILABILITY OF DRAFT AMENDMENT ASSESSMENT REPORT

Written notification regarding the availability of the Draft Amendment Assessment Report was provided to the following parties:

- The competent authority;
- State departments;
- Organs of state which have jurisdiction in respect of the activity;
- All I&AP's that were registered as part of the original EIA process;
- All I&AP's that were registered on other EIA's that took place on the same properties; and
- All neighbouring property owners.

Copies and proof of these notifications are included in Appendix F3.

9.3 AVAILABILITY OF DRAFT AMENDMENT ASSESSMENT REPORT

As agreed to with the competent authority, the Draft Amendment Assessment Report was made available to the abovementioned parties via the following methods:

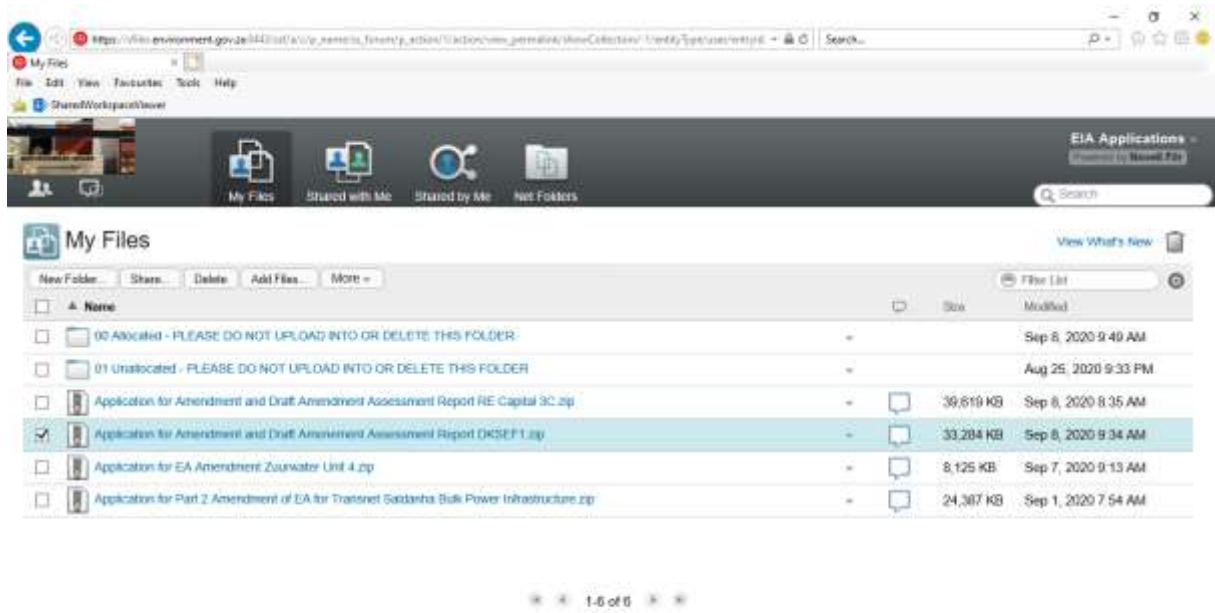


Figure 9: Submission of the Draft Amendment Assessment Report to the Competant Authority via their flir upload system.

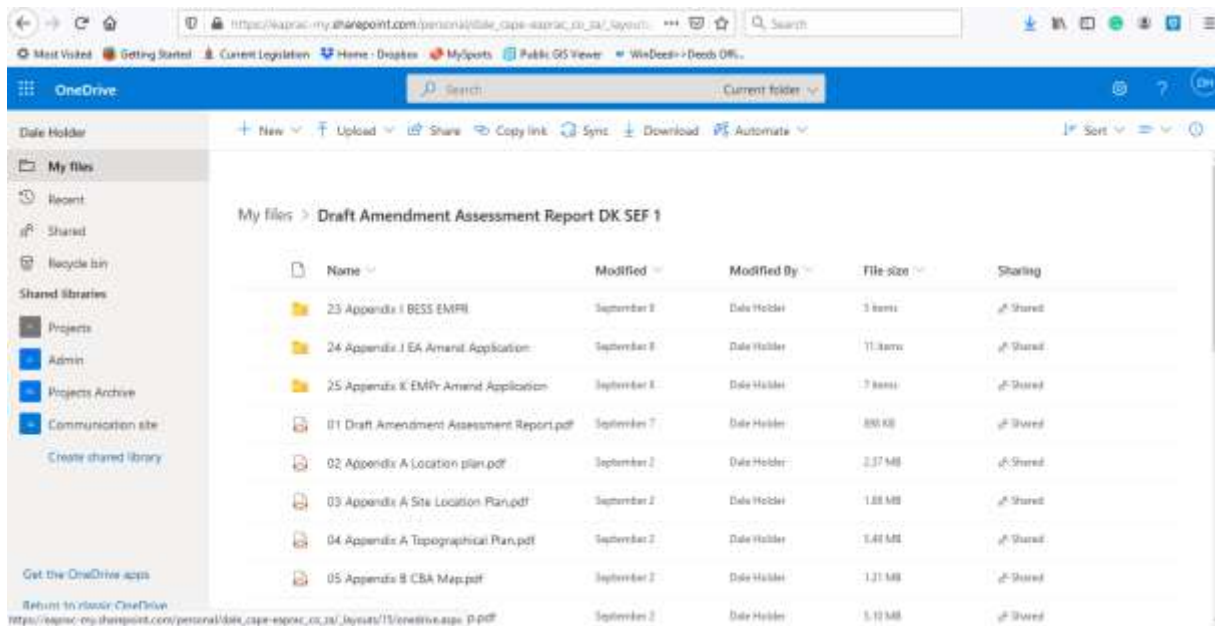


Figure 10: Availability of Draft Amendment Assessment Report on MS Office Sharepoint.

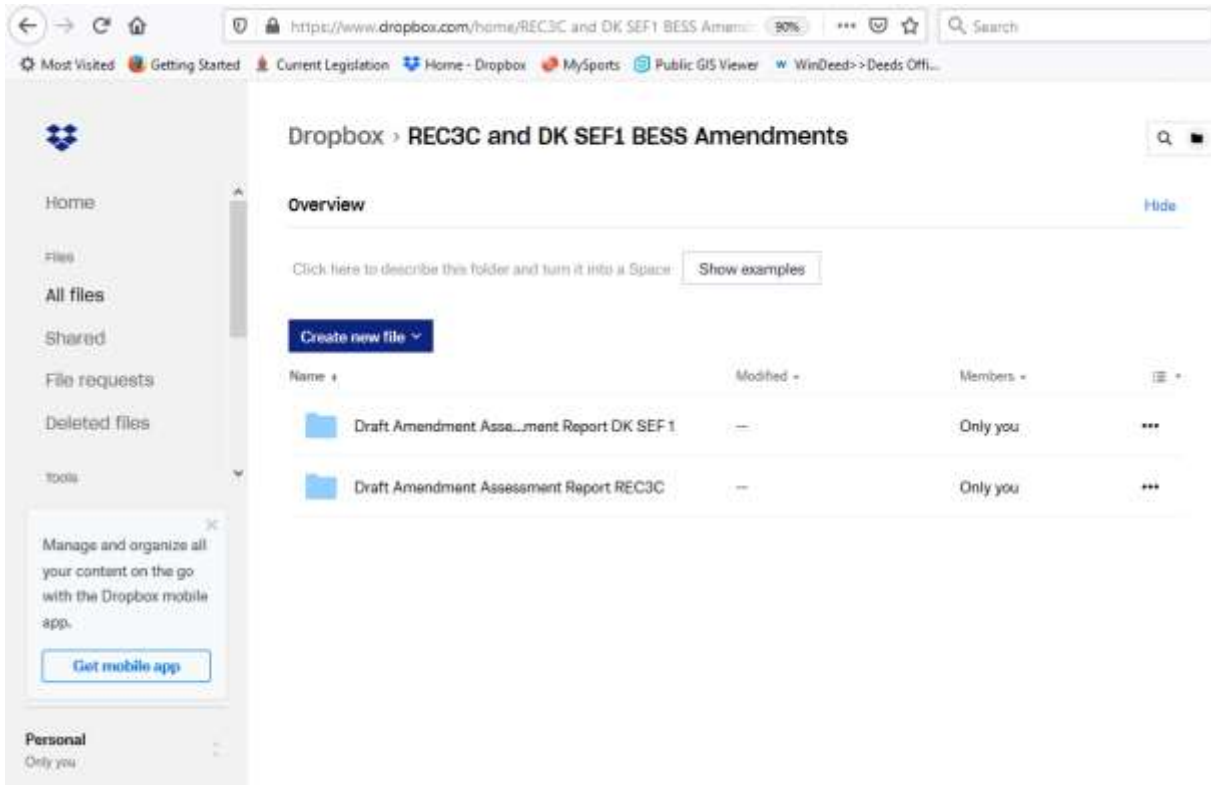


Figure 11: Draft Amendment Assessment Report as Available via dedicated dropbox download.

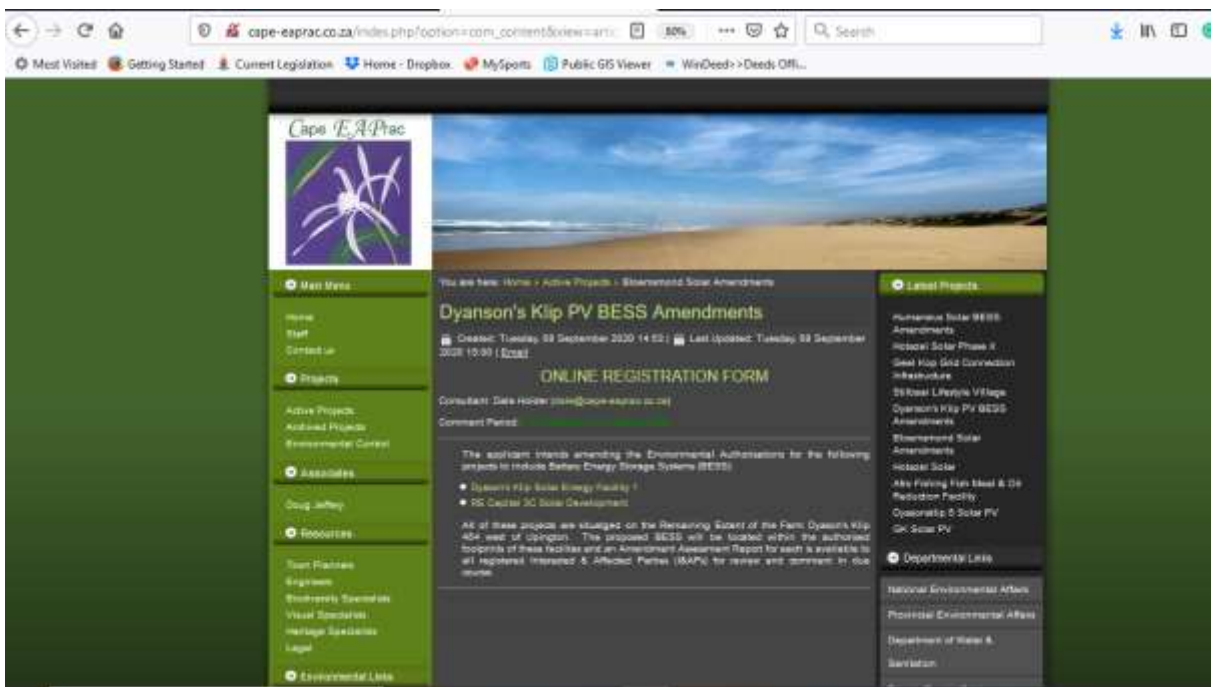


Figure 12: Online Registration and Draft Amendment Assessment Reports as available on the Cape EAPrac Website.

9.4 COMMENTS ON DRAFT AMENDMENT ASSESSMENT REPORT

During the comment period, the only comments received were from Eskom and the Competent Authority. Copies of these comments are included in Appendix F4 and summarised along with the responses thereto in appendix F1.

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.

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 were 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 have been considered and incorporated into the Final Amendment Assessment Report that is herewith submitted to the to DEFF 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. 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;**
- 2. The applicant must compile and implement a thermal management and monitoring programme. This programme should be completed prior to the operation of the BESS;**
- 3. During the construction phase of the project, first responders from Upington (such as fire fighters and paramedics) must be given appropriate training on dealing with an unlikely situation that may occur as a result of the BESS; such training must be provided by the technology suppliers or an appointed service provider;**
- 4. 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;**
- 5. In the unlikely event of a thermal runaway, any contamination of land 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;**
- 6. The BESS Addendum to the EMPr must be adopted and implemented for the life cycle of the project; and**
- 7. That detailed technology specific risk assessment be compiled and submitted to the competent authority for authorisation (once the preferred technology service providers are decided upon).**

11. ABBREVIATIONS

| | |
|-----------|--|
| AIA | Archaeological Impact Assessment |
| BGIS LUDS | Biodiversity Geographic Information System Land Use Decision Support |
| CBA | Critical Biodiversity Area |
| CDSM | Chief Directorate Surveys and Mapping |
| CEMPr | Construction Environmental Management Programme |
| DEA | Department of Environmental Affairs |
| DEA&NC | Department of Environmental Affairs and Nature Conservation |
| DME | Department of Minerals and Energy |
| DSR | Draft Scoping Report |
| EAP | Environmental Impact Practitioner |
| EHS | Environmental, Health & Safety |
| EIA | Environmental Impact Assessment |
| EIR | Environmental Impact Report |
| EMPr | Environmental Management Programme |
| ESA | Ecological Support Area |
| GPS | Global Positioning System |
| GWh | Giga Watt hour |
| HIA | Heritage Impact Assessment |
| I&APs | Interested and Affected Parties |
| IDP | Integrated Development Plan |
| IFC | International Finance Corporation |
| IPP | Independent Power Producer |
| kV | Kilo Volt |
| LUDS | Land Use Decision Support |
| LUPO | Land Use Planning Ordinance |

| | |
|-------------|---|
| 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 |
| NSBA | National Spatial Biodiversity Assessment |
| NWA | National Water Act |
| PM | Post Meridiem; "Afternoon" |
| PSDF | Provincial Spatial Development Framework |
| REIPPPP | Renewable Energy Independent Power Producer Procurement Programme |
| S.A. | South Africa |
| SACAA / CAA | South African Civil Aviation Authority |
| SAHRA | South African National Heritage Resources Agency |
| SANBI | South Africa National Biodiversity Institute |
| SANS | South Africa National Standards |
| SDF | Spatial Development Framework |
| TOPS | Threatened and Protected Species |

12. REFERENCES

⁵DEA (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.

⁵ This reference list excludes specialist studies that form part of this environmental process and which are contained in Annexure E1 – E12

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.