# VOLUME I

## PART II AMENDMENT REPORT

# PROPOSED AMENDMENT OF THE AUTHORISED 300 MW PAULPUTS WIND ENERGY FACILITY AND ITS ASSOCIATED 132 kV GRID CONNECTION, NORTHERN CAPE PROVINCE (PAULPUTS NORTH WIND ENERGY FACILITY)

**On behalf of**

## PAULPUTS WIND ENERGY FACILITY NORTH (RF) (PTY) LTD

**NOVEMBER 2021**

## DFFE REFERENCE: 14/12/16/3/3/2/1120 and 14/12/16/3/3/2/1120/AM1

**FINAL FOR AUTHORITY DECISION**

Prepared By:

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## PROJECT INFORMATION

| | | | |
|---|---|---|---|
| **DFFE Reference:** | 14/12/16/3/3/2/1120 and 14/12/16/3/3/2/1120/AM1 | | |
| **Arcus Reference:** | 3944 Paulputs North WEF Amendment | | |
| **Project Title:** | Part II Amendment of the Authorised 300 MW Paulputs Wind Energy Facility and its associated 132 kV Grid Connection, Northern Cape Province – Paulputs North Wind Energy Facility. | | |
| **Project Director:** | Ashlin Bodasing | - | Arcus Consultancy Services South Africa (Pty) Ltd |
| **Project Manager & EAP** | Ashlin Bodasing & Ashleigh von der Heyden[1] | - | Arcus Consultancy Services South Africa (Pty) Ltd |
| **Project Assistant EAP** | Aneesah Alwie | - | Arcus Consultancy Services South Africa (Pty) Ltd |
| **Specialist Project Team:** | Dr Owen Davies | - | Arcus Consultancy Services South Africa (Pty) Ltd |
| | Dr Brian Colloty | - | Enviro Sci. (Pty) Ltd |
| | Jayson Orton | - | ASHA Consulting (Pty) Ltd |
| | Johann Lanz | - | Independent Consultant |
| | Jamie Pote | - | Independent Consultant |
| | Stephen Fautley | - | Techso (Pty) Ltd |
| | Alan Moore | - | Arcus Consulting Ltd |
| | Leandri Kruger | - | Independent Consultant |
| | Kerry Schwartz | - | SiVest SA (Pty) Ltd |
| | Michael Brits<br>Jonathan Aronson | - | Arcus Consultancy Services South Africa (Pty) Ltd |
| **Project Applicant:** | Paulputs Wind Energy Facility North (RF) (Pty) Ltd | | |
| **Report Status:** | Final for Authority Decision | | |

[1] Ashleigh von der Heyden is on maternity leave and Ashlin Bodasing has amended and updated the final report.

## CHANGES MADE TO VOLUME I FROM DRAFT TO FINAL

| Changes made from Draft to Final version of Volume I | Section |
|---|---|
| Date changed to November 2021 | Headers, Footers, Cover Page of the Final Amendment, EMPr and Public Participation Report. |
| Typographical and formatting corrections | Throughout the Final Amendment, EMPr and Public Participation Report. |
| The word draft was removed throughout where applicable. | Throughout the Final Amendment, EMPr and Public Participation Report. |
| Added Table with Comments received from DFFE on the Draft Amendment Report and EAP responses. | Final Amendment Report: Section 1.4. |
| Distance of the authorised Paulputs WEF and Grid Connection to Pofadder amended to 35 km. | Final Amendment Report:<br>- Footnote 5, Section 2.<br>- Section 3, Table 3.3. |
| Section 3 of the Final Amendment Report amended to show conditions of the EA to be retained, changed or removed based on DFFE comments. | Final Amendment Report: Section 3. |
| BESS preferred technology highlighted based on DFFE comments. | Final Amendment Report: Section 3.2. |
| Conclusions and Recommendations updated to remove conditions that are already contained within the approved EA. | Final Amendment Report: Section 11. |
| Change to the size of the temporary storage area as a typo from 1.5 Ha to 1 Ha as per the approved EA. | Final Amendment Report: Section 3, Table 3.3 |
| The EMPr was made specific for the Paulputs North WEF, On-site Substation and BESS. Reference to Grid Connection was removed. | Appendix B: EMPr. |
| The Comments & Responses Report was updated to present the PPP conducted to date, as well as all comments received and responses given. | Appendix C: PP Report. |

**Note: No changes were made to Volume II: Specialist Amendment Reports / Letters from the draft to final stage of the application process.**

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## VOLUME I: PART II AMENDMENT REPORT

## PLATE LIST:

**TABLE LIST:**



**VOLUME II: SPECIALIST REPORTS AND SITE VERIFICATION LETTERS**

## ABBREVIATIONS, ACRONYMS AND UNITS

| | |
|---|---|
| BESS | Battery Energy Storage System |
| CA | Competent Authority |
| CAA | Civil Aviation Authority |
| CARA | Conservation of Agricultural Resources, 1983 (Act No. 43 of 1983) |
| CBA | Critical Biodiversity Area |
| DFFE | Department of Environment Forestry and Fisheries (National) |
| DMRE | Department of Mineral Resources |
| DoE | Department of Energy |
| EA | Environmental Authorisation |
| EAP | Environmental Assessment Practitioner |
| ECA | Environment Conservation Act, 1989 No. 73 of 1989) |
| EGI | Electricity Grid Infrastructure |
| EIA | Environmental Impact Assessment |
| EMF | Environmental Management Framework |
| EMPr | Environmental Management Programme |
| ESA | Ecological Support Area |
| ESA | Early Stone Age |
| ESKOM | Eskom Holdings SOC Limited |
| EWT | Endangered Wildlife Trust |
| ft | Measurement: foot |
| GN | Government Notice |
| GNR | Government Notice Regulation |
| Ha | Hectares |
| HIA | Heritage Impact Assessment |
| I&AP | Interested and Affected Party |
| IDP | Integrated Development Plan |
| IPP | Independent Power Producer |
| IRP | Integrated Resource Plan |
| kV | Kilovolt |
| kWh | Kilowatt Hours |
| Li-ion | Lithium Ion |
| LSA | Late Stone Age |
| MSA | Middle Stone Age |
| MTS | Main Transmission Substation |
| MW | Megawatt |
| NaS | Sodium Sulphur |
| NDP | National Development Plan |
| NEMA | National Environmental Management Act, 1998 (Act No. 107 of 1998) |
| NEMBA | National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) |
| NFEPA | National Freshwater Ecosystem Priority Area |
| NHRA | National Heritage Resources Act, 1999 (Act No. 25 of 1999) |
| NPAES | National Parks Area Expansion Strategy |
| NWA | National Water Act, 1998 (Act No. 36 of 1998) |
| PES | Present Ecological State |
| PGDS | Provincial Growth and Development Strategy |
| PPP | Public Participation Process |
| REIPPPP | Renewable Energy Independent Power Producer Procurement Programme |
| S&EIA | Scoping and Environmental Impact Assessment |
| SABAAP | South African Bat Assessment Advisory Panel |
| SAHRA | South African Heritage Resources Agency |
| SANBI | South African National Biodiversity Institute |
| SANRAL | South African National Roads Agency Limited |
| SANS | South African National Standards |
| SCADA | Supervisory Control and Data Acquisition |
| SDF | Spatial Development Framework |
| SEA | Strategic Environmental Assessment |
| SIA | Social Impact Assessment |
| WEF | Wind Energy Facility |

## EXECUTIVE SUMMARY

Paulputs Wind Energy Facility (RF) (Pty) Ltd ('PWEF'), a wholly owned subsidiary of WKN Windcurrent SA (Pty) Ltd, was granted environmental authorisation for the 300 MW (75 Turbine) Paulputs Wind Energy Facility (WEF) and its associated 132 kV grid connection on 11 December 2019 by the Department of Forestry, Fisheries and the Environment (DFFE) (DFFE Reference 14/12/16/3/3/2/1120) (Figure 1). PWEF are proposing to give permission to Paulputs Wind Energy Facility North (RF) (Pty) Ltd and Paulputs Wind Energy Facility South (RF) (Pty) Ltd to **split and amend** the Environmental Authorisation (EA).

An overview of the total applied amendments for the Paulputs WEF EA, as submitted in the Application to the DFFE, is provided below for contextual purposes:

- **Amendment 1: Paulputs South WEF** (subject to a separate report and assessment)**:** Paulputs Wind Energy Facility South ('Paulputs South') will consist of a 150 MW facility with up to 35 turbines, with a hub height of up to 180 m, blade length of up to 110 m and a rotor diameter of up to 220 m. All infrastructure is to be located to the east of the N14 Highway (within the authorised development footprint).
- **Amendment 2: Paulputs North WEF (the 'proposed amendment 2' – this report):** Paulputs Wind Energy Facility North (RF) (Pty) Ltd ('Paulputs North') will consist of a 150 MW Facility with up to 40 turbines, with a hub height of up to 180 m, blade length of up to 110 m and a rotor diameter of up to 220 m. The authorised substation will be included within this development and will include a Battery Energy Storage System, which will be housed within the approved temporary laydown area. All infrastructure (turbines, substation, BESS, etc.) will be located to the west of the N14 Highway (within the authorised development footprint).
- **Amendment 3: Paulputs North WEF Grid Connection** (subject to a separate report and assessment)**:** PWEF is applying for permission to remove (from its EA) and transfer the rights and ownership of the authorised 132 kV Grid Connection (Option C) to Paulputs Wind Energy Facility North (RF) (Pty) Ltd. The approved grid connection will be taken over by Eskom in the future and thus requires a separate Environmental Authorisation. The grid connection description as authorised will not change.

**The focus of this amendment report is on the Paulputs North WEF Application.**

This proposed amendment application was submitted to the DFFE (the Competent Authority) and is summarised below:

***Table I: Short Summary of the Amendments Proposed to the Authorised 300 MW Paulputs WEF applicable to the Paulputs North WEF***

| | **Authorised** | **Amendment** |
|---|---|---|
| **Holder of Authorisation** | Paulputs Wind Energy Facility (Pty) Ltd | Paulputs Wind Energy Facility North (RF) (Pty) Ltd |
| **Name and Capacity of the Development** | The 300 MW Paulputs Wind Energy Facility (WEF) and associated 132 kV Grid Connection, Northern Cape Province. | The 150 MW Paulputs North Wind Energy Facility (WEF), On-Site Substation[2] and a Battery Energy Storage System, Northern Cape Province. |
| | Megawatt Capacity of 300 MW | Megawatt Capacity up to 150 MW |

[2] The onsite substation is already authorised and the BESS is an addition and part of this amendment application. The BESS does not trigger any new of specified listed activities and will be constructed within an already authorised area of the development site.

| | Authorised | Amendment |
|---|---|---|
| **Scope** | 75 Turbine Wind Turbine Generators | Up to 40 Wind Turbine Generators |
| | Grid Connection Infrastructure:<br><br>Single Circuit, 132 kV Grid Connection | Grid Connection Infrastructure: n/a[3]<br><br>Not included in this Split of the EA (refer to Amendment 3) (separate report) |
| | 132 kV on-site Substation | 132 kV on-site Substation |
| | | Addition of a Battery Energy Storage Facility (within the authorised temporary laydown footprint). |
| **Wind Turbine Generator Specifications** | Maximum height to tip of the blade of 230 m<br>Hub height of up to 140 m<br>Rotor diameter of up to 180 m<br>A blade length of up to 90 m | Maximum height to tip of the blade of 290 m<br><br>Hub height of up to 180 m<br>Rotor diameter of up to 220 m<br>A blade length of up to 110 m |

In terms of locality, the Paulputs North WEF, On-site substation and BESS locations are provided below:

***Table II: Co-ordinates of the Paulputs North WEF and Infrastructure***

| Reference Point | Latitude | Longitude |
|---|---|---|
| **Paulputs North WEF Development Area Co-ordinates** | | |
| A | 28°52’58” S | 19°41’30” E |
| B | 28°54’45” S | 19°47’05” E |
| C | 28°59'38.21"S | 19°41'56.37"E |
| D | 28°57’14” S | 19°39’29” E |
| E | 28°55’39” S | 19°40’44” E |
| **Authorised On-Site Substation (Option A) Development Area Co-ordinates** | | |
| North Corner | 28°56'25.66"S | 19°42'7.13"E |
| West Corner | 28°56'32.05"S | 19°42'7.70"E |
| South Corner | 28°56'32.24"S | 19°42'16.53"E |
| East Corner | 28°56'25.89"S | 19°42'16.86"E |
| **Battery Energy Storage System** | | |
| Battery Energy Storage System (within the authorised Temporary Laydown footprint) | 28°56'28.20"S | 19°42'14.57"E |

The Paulputs WEF is authorised for the maximum height to tip of the blade of 230 m, with a hub height of up to 140 m, a rotor diameter of up to 180 m and a blade length of up to 90 m. For this amendment, Paulputs North seek authorisation to amend the turbine specifications to allow for a 110 m blade length and a 180 m hub height.

[3] The grid connection will not be included in this EA, if approved, as it is requested that it is split from the EA and is being applied to have its own separate EA

Paulputs North is also proposing to include a battery energy storage system as part of this amendment process. A high-level risk assessment has been conducted. The findings of this assessment are contained in Section 9 and 10, whilst the conclusions of the assessment are provided in Section 10.

## LEGISLATIVE REQUIREMENTS

This report has been compiled to comply with Regulation 32(1)a of the NEMA, 1998, EIA regulations, 2014, as amended and Regulation 660 in terms of the Disaster Management Act, 2002. This amendment assessment report has been compiled to assess the impact of splitting the Paulputs WEF and amending the turbine specifications. The applicant is also proposing the addition of a Battery Energy Storage System (BESS) within the footprint authorised for temporary laydown. Key inclusions in this amendment assessment report are as follow:

1. Statements from specialists confirming whether or not the proposed amendments will change the nature or impact of any of the impacts that were assessed as part of specialist studies for the authorised Paulputs WEF (2019). *These specialists' statements are included in Volume II.*
2. Statements from specialists to confirm whether or not the proposed amendments within the assessed footprint will result in any additional impacts. *Included in Volume II*.
3. Statements from specialists to confirm whether any additional management actions or mitigations are applicable to the proposed amendments. *Included in Volume II.*
4. A BESS Technical Study. *Included in Section 3*.
5. A High-level BESS risk assessment. Included in Section 9, 10 and 11.
6. An EMPr which includes additional management outcomes and actions associated with the Paulputs North WEF, on-site substation and BESS. *Included as Appendix B*.

The draft report was made available for public and stakeholder comment and review for a period of 30 days, from the 02 August 2021 to the 01 September 2021 (both days inclusive) (see Appendix C – Public Participation Report). The below parties received notification of the availability of the draft amendment assessment report:

(a) The Competent Authority;

(b) Each organ of 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.

## PROJECT TEAM

### Environmental Project Team:

| **Name of practitioner** | **Ms Ashlin Bodasing** |
|---|---|

| | |
|---|---|
| **Designation** | Project Director and EAP[4] |
| **Tel no** | +27 (0) 21 412 1529 |
| **E-mail address** | paulputs@arcusconsulting.co.za |
| **Name of practitioner** | **Mrs Ashleigh von der Heyden** |
| **Designation** | Project Manager and EAP |
| **Tel no** | +27 (0) 21 412 1529 |
| **E-mail address** | paulputs@arcusconsulting.co.za |

**Specialist Project Team:**

The majority of the same specialists were commissioned for this amendment report, with the exception of the Avifaunal and Ecology specialists.

The original Avifaunal specialist for the approved Paulputs WEF EIA was undertaken by Andrew Pearson who no longer conducts avifaunal specialist studies. Dr Owen Davies was appointed as the new specialist and undertook an additional site visit in February 2020 to verify the information contained in the approved Paulputs WEF Avifaunal specialist report and to inform the amendment application. Dr Davies' avifaunal report and site verification report are contained in Volume II of this report.

Simon Todd of 3Foxes Biodiversity Consulting undertook the original ecology study for the Paulputs WEF. Mr Todd did not have capacity to provide assessment during the time of reporting. Mr Jamie Pote was appointed as the new specialist and undertook a site visit in June 2021, during the early winter months to verify the information contained in the approved Paulputs WEF Terrestrial Biodiversity, including Flora and Fauna, specialist report and to inform the amendment application. Mr Potes' Compliance Statements and site verification reports are contained in Volume II of this report.

## SUMMARY OF SPECIALIST IMPACT STATEMENT

- **Aquatic Amendment Assessment** – No additional impacts. Further, no changes to the original mitigations or EMPr recommendations are required.
- **Avifaunal Amendment Assessment** - It is unlikely that the proposed amendments to the Paulputs WEF would result in a change in the significance of impacts as assessed for the authorised Paulputs WEF, including cumulative impacts. Impacts can be mitigated to acceptable levels provided the recommended mitigation measures of the original authorisation are implemented.
- **Terrestrial Ecology Amendment Assessment** – There are no changes in the overall post-mitigation impacts associated with Paulputs North WEF. The changes to the specifications of the wind turbines would not be significant in terms of terrestrial ecology as this would not increase the overall footprint of the development (as the split is within the authorised WEF footprint). Thus, overall, the split of the single 300 MW development into two 150 MW developments would not increase the overall ecological impacts associated with the WEF.
- **Bat Amendment Assessment** - It is unlikely that the proposed amendments would result in a change to the significance in impacts as assessed in the Final EIA – including cumulative impacts. Impacts can be mitigated to acceptable levels provided the recommended mitigation measures of the original authorisation are implemented.

[4] Mrs. Ashleigh von der Heyden is on maternity leave and the Final Reports were signed off by the EAP Ashlin Bodasing.

- **Soil, Land Use and Agricultural Potential Amendment Assessment -** There are no agricultural impacts related to this proposed amendment. In addition, there are no agricultural advantages or disadvantages related to it. The proposed amendment does not require any changes or additions to the mitigation measures for agricultural impacts that were recommended for the authorised Paulputs WEF.
- **Heritage and Palaeontology Amendment Assessment** - This amendment assessment found that no sites of very high cultural significance were located during the survey. Despite the permanence of impacts to archaeological sites, the low extent and probability of impacts combined to result in a low significance. With mitigation, the intensity would become low and the resulting significance would remain low.
- **Visual Amendment Assessment –** There is no change in the impact rating from what was approved in the Visual Impact Assessment (VIA) for the Paulputs WEF. No additional recommendations or mitigation measures are proposed. All mitigation measures set out in the approved VIA remain valid.
- **Noise Amendment Assessment** - Overall, the changes proposed as part of the proposed amendment will not result in any changes to the findings of the authorised Paulputs WEF EIA.
- **Social Amendment Assessment** - The proposed amendment will not result in any additional impacts, cumulative impacts or residual impacts, nor will it change the significance of these impacts. Paulputs North must ensure compliance with the recommendations of Section 4 of the approved Social Impact Assessment for the Paulputs WEF.
- **Traffic Amendment Assessment –** The proposed amendment does not change the Traffic Specialist Report findings and recommendations as stated in the authorised Paulputs WEF EIA. A transport management plan must be compiled and must consider the logistics of transporting abnormal loads to site. This plan must be compiled after preferred bidder is awarded.
- **BESS High-Risk Assessment –** The installation of the BESS will result in negative impacts of a majority low significance. When managed and maintained correctly, impacts are expected to be low to very low. Positive impacts in terms of load variability stabilization and energy storage will be realized with the installation and operation of a BESS at the Paulputs North WEF. The recommended plans and programmes outlined in Sections 9, 10 and 11 must be implemented.

## CONCLUSION

This amendment application is being undertaken to identify and assess environmental impacts, issues and concerns that may result from the proposed amendment to the Environmental Authorisation. The information contained in this report will enable the DFFE to make an informed decision to grant or deny the proposed Environmental Amendment Application.

It is the opinion of the EAP that the proposed project amendments will not affect any change in the impact ratings from those which were assessed during the Paulputs WEF EIA undertaken by Arcus in August 2019.

The **proposed amendment can be authorised** subject to Paulputs North (the applicant) adhering to all mitigation and management measures outlined in this final amendment report, the approved Paulputs WEF EIA (2019) and the Paulputs North WEF EMPr.

# 1 INTRODUCTION

Paulputs Wind Energy Facility (Pty) Ltd ('PWEF'), a wholly owned subsidiary of WKN Windcurrent SA (Pty) Ltd, was granted environmental authorisation for the 300 MW (75 Turbine) Paulputs Wind Energy Facility (WEF) and its associated 132 kV grid connection on 11 December 2019 by the Department of Forestry, Fisheries and Environment (DFFE) (DFFE Reference 14/12/16/3/3/2/1120) (Figure 1). PWEF are proposing to give permission to Paulputs Wind Energy Facility North (RF) (Pty) Ltd and Paulputs Wind Energy Facility South (RF) (Pty) Ltd to **split and amend** the Environmental Authorisation (EA).

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**The focus of this amendment report is on the Paulputs North WEF Application.**

As the proposed amendment requires Environmental Authorisation (EA) from the Competent Authority (CA), Paulputs Wind Energy Facility North (RF) (Pty) Ltd ('Paulputs North') appointed Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus') as the project manager and independent environmental consulting firm to undertake the necessary Part II Amendment Application.

## 1.1 Objectives of this Amendment Report

The proposed amendment aims to identify and assess the potential change in the significance of impacts associated with amending the specifications, as well as amend the conditions of approval obtained for the authorised Paulputs WEF. The findings, including specialist findings, are used by the EAP, Applicant (Paulputs North) and Authorities to obtain an objective view of the potential environmental and social impacts that may/may not arise during the construction, operation and decommissioning of the proposed amendment and its associated infrastructure. Aligned to the '*One Environmental System'*, this amendment report has been compiled with the following objectives:

| The Report Objectives | •To provide the project's I&APs, stakeholders, commenting authorities and the competent authority (CA) with a thorough project description and amendment process description.<br>•To maintain cordial relationships with local residents, authorities and other stakeholders via sustained open communication.<br>•To determine the policy and legislative context within which the proposed activity is undertaken and how the activity complies with and responds to the policy and legislative context.<br>•To provide an objective assessment of the preferred amendment option/s.<br>•To address the advantages and disadvantages of the proposed amendments through assessing the need and desirability of the project as well as the proposed project impacts. |
|---|---|

## 1.2 Assumptions and Limitations

The following assumptions and limitations are applicable to the proposed amendment:

- The information on which this report is based (baseline studies and project information, as well as existing information) is accurate and correct.
- The assumptions and limitations presented in each specialist report (Volume II of this report) are noted for the amendment report.
- It is assumed that all information provided by the applicant and I&APs to the project team was correct and valid at the time it was provided.
- The recommendations derived from this report would be included in all tender documentation/bidding documentation and the EMPr for implementation.
- It should be emphasized that information, as presented in this amendment report, only has reference to the study area (Paulputs North WEF) as indicated on the accompanying figures. Therefore, this information cannot be applied to any other area without detailed investigation.

## 1.3 Details of EAP and Specialists

As a specialist renewable energy consulting firm, Arcus is a leader in providing environmental and social consulting, advisory and management services. Arcus provides a turn-key consulting service and has considerable experience in renewable energy developments; from site identification and feasibility through to impact assessment and the construction and operational phases.

Based in the United Kingdom and South Africa (Cape Town), our teams have worked on more than 250 renewable energy projects across the world and are highly trained in various environmental disciplines, with significant hands-on experience in an array of projects across various industries.

Arcus focuses on collaborating with the developer to deliver the most cost effective and least impacting project design that meets the needs for future generations. Arcus adopt a communicative and quality-based approach for all projects and have been certified in terms of the Quality Management System ISO 9001 standard for the past four years. This system provides tools, control measures and guidelines for reporting, data management, equipment calibration and management, timeline management, map production and overall project management.

### *1.3.1 Expertise of the EAP*

**Ashlin Bodasing (Project Director and EAP)** is a Technical Director at Arcus. Ashlin is the Project Director and is responsible for the overall direction of the project and ensure that all legal requirements are met. Ashlin is a registered EAP with EAPASA (2020/780). Having obtained her Bachelor of Social Science Degree (Geography and Environmental

Management) from the University of Kwa-Zulu Natal; she has over 16 years' experience in the environmental consulting industry in southern Africa. Ashlin has excellent Project Management experience and has gained major project experience in the development of Environmental Impact Assessments, Environmental Management Plans and the monitoring of construction activities. Her areas of expertise include project management, environmental scoping and impact assessments, environmental management plans, environmental compliance monitoring and environmental feasibility studies, and environmental due diligence reviews.

**Ashleigh von der Heyden (Project Manager and EAP)** is a Senior Environmental Consultant at Arcus, Cape Town. She is a registered SACNASP Environmental Consultant with 5.5 years working experience in the environmental sector, namely the Renewable Energy and Mining sectors. In addition, she has international reporting experience for the International Finance Corporation (IFC) and Equator Principles (EP) Performance Standards and the World Bank Environmental Guidelines. Ashleigh has a proven track record in managing environmental projects to the required quality standards, timeframes and budgets. Her core responsibilities include client management and project implementation, reporting and execution. Her day-to-day responsibilities include report review, stakeholder engagement and business development.

Ashleigh completed her BSc (Hons) in Conservation Ecology at the University of Stellenbosch and is currently completing her MSc in Environmental Sciences. She is a member of the Soil Science Society of South Africa (SSSSA) and is completing her Project Management Professional (PMP) Certification through the Project Management Institute (PMI).

### *1.3.2 Specialist Team Members*

The majority of the same specialists were commissioned for this amendment report, with exception of the Avifaunal and Ecology specialists (Table 1-1).

The original Avifaunal specialist for the approved Paulputs WEF EIA was undertaken by Andrew Pearson who no longer conducts avifaunal specialist studies. Dr Owen Davies was appointed as the new specialist and undertook an additional site visit in February 2020 to verify the information contained in the approved Paulputs WEF Avifaunal specialist report and to inform the amendment application. Dr Davies' avifaunal report and site verification report are contained in Volume II of this report.

Simon Todd of 3Foxes Biodiversity Consulting undertook the original ecology study for the Paulputs WEF. Mr Todd did not have capacity to provide assessment during the time of reporting. Mr Jamie Pote was appointed as the new specialist and undertook a site visit in June 2021, during the early winter months to verify the information contained in the approved Paulputs WEF Terrestrial Biodiversity, including Flora and Fauna, specialist report and to inform the amendment application. Mr Potes' Compliance Statements and site verification reports are contained in Volume II of this report.

***Table 1-1: Details of the Specialist Project Team***

| Technical Discipline | Lead Specialist | Specialist Organisation |
|---|---|---|
| Avifauna | Dr Owen Davies | Arcus Consultancy Services SA (Pty Ltd) |
| Bats | Jonathan Aronson<br>Michael Brits | Arcus Consultancy Services SA (Pty Ltd) |
| Terrestrial Ecology (Flora and Fauna) | Jamie Pote | Independent Consultant |
| Soil, land use and agricultural potential | Johann Lanz | Independent Consultant |

| Technical Discipline | Lead Specialist | Specialist Organisation |
|---|---|---|
| Aquatic / Freshwater | Dr Brian Colloty | Enviro Sci. Pty Ltd |
| Heritage, Archaeology and Palaeontology | Jayson Orton | ASHA Consulting |
| Socio-Economic | Leandri Kruger | Independent Consultant |
| Noise | Alan Moore | Arcus Consulting Ltd |
| Visual and Landscape | Kerry Schwartz | SiVest |
| Traffic and transportation | Stephen Fautley | Techso (Pty) Ltd |

## 1.4 DFFE Comments on the Draft Amendment Report

The table below (Table 1-2) lists the comments made by the DFFE, on the Draft Amendment Report (DAR). It must be noted that the comments provided below is applicable to the Draft Amendment Report of all three Amendments being applied for, i.e., Paulputs North WEF (this report); Paulputs North WEF Grid Connection (separate report); and the Paulputs South WEF (separate report). The comments have been addressed in this Final Amendment Report (FAR) as applicable.

***Table 1-2: DFFE Comments on the Draft Amendment Report***

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| COMMENTS ON THE APPLICATION FOR AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION ISSUED ON 11 DECEMBER 2019 FOR THE 300 MW PAULPUTS WIND ENERGY FACILITY (WEF) AND ASSOCIATED 132 kV GRID CONNECTION, NORTHERN CAPE PROVINCE<br>The Environmental Authorisation (EA) for the above-mentioned project dated 11 December 2019, the application for amendment of the EA and the draft motivation report received by the Department on 05 August 2021 and the acknowledgement letter dated 11 August 2021, refer.<br>This letter serves to inform you that the following information must be included to the final Motivation Report: | | | |
| | **Application Form** | | |
| 1 | Ensure that all amendments to the EA are applied for and provided in section 6 on page 8 of 13 of the application form (e.g. the inclusion of Battery Energy Storage System in Paulputs North Wind Energy Facility) including the conditions to be removed with reasons for each amendment. | The Application Form has been amended / updated and is being submitted with the final motivational report.<br>A matrix detailing the required amendments as well as reasons for the proposed amendments has been appended to the application form. Refer to Appendix 8 of the Application Form. | Amended / Updated Application Form submitted with the Final Amendment Report. |
| 2 | In addition, please ensure that the amendments applied for in the application form are the same as the amendments described in the final Motivation report. | The amendments applied for in the application form (as included in the amended / updated application form and appended matrix) has been updated in the Final Motivation Report. | Amended / Updated Application Form<br>Volume I: Final Amendment Report |
| 3 | You are advised to submit separate application forms for each facility (i.e., Paulputs North and South) indicating the proposed amendment i.e. relevant component and its capacity, what has | The EAP confirmed this request with the relevant case officer and it was confirmed that the submission of separate application forms are not required. A single Amended / Updated application form with separate | Amended / Updated Application Form submitted with the Final Amendment Report. |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
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| | been removed, what has been approved and the amendments as well as reason for each amendment. | payments has been submitted with the Final Amendment Report. | |
| 4 | It has been noted that the proposed amendment 3 in the application form on page 8 refer to 132 kV grid connection while on page v of the motivational report, it has been indicated that this component would be removed. Please clarify that and ensure the proposed amendment are the same in both the application form and motivational report. | A single application form has been submitted with three separate Final Amendment Reports.<br>Paulputs Wind Energy Facility (RF) (Pty) Ltd are proposing to give permission to Paulputs Wind Energy Facility North (RF) (Pty) Ltd and Paulputs Wind Energy Facility South (Pty) Ltd to **split and amend** the Environmental Authorisation (EA) into three amendment applications for EA.<br><br>Amendment 3 as stated in the Application Form must be read in conjunction with the Motivational (Final Amendment) Report titled: "132 kV Grid Connection for the Paulputs North WEF" and not the Motivational Report titled: "Paulputs North WEF".<br><br>The approved grid connection will be taken over by Eskom in the future and thus requires its own Environmental Authorisation, hence it has been split from the original EA. | **Amendment 3:** Volume I: Final Amendment Report of the Report titled: "132 kV Grid Connection for the Paulputs North WEF" |
| 5 | The Department has noted that a certified EA or an affidavit that explains the unavailability of a certified EA is not appended to the application form. Therefore, you are required to provide certified EA or an original commissioned Affidavit/Affirmation under oath undertaken by the applicant and must be appended to the application form. | A certified EA has been appended to the Amended / Updated Application Form. | Amended / Updated Application Form |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
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| 6 | Provide a letters of acceptance of responsibilities and obligations of the EA by the new holders of the requested resultant three EAs. | Letters were included in as Appendix 8 in the Application Form submitted with the Draft Amendment Report. These have been included again as Appendix 7 in the Amended / Updated Application Form. | Amended / Updated Application Form |
| | **Draft Motivational Report** | | |
| 7 | You are advised to submit separate final amendment report for each facility (i.e. Paulput North and South) indicating the proposed amendment, potential impacts as a result of the amendments and its assessment, inputs from the specialists and their recommendations, etc. | Separate reports for each facility has been submitted, which includes the proposed amendments, potential impacts as a result of the amendments and its assessment, inputs from the specialists and their recommendations, etc.<br>Separate reports were subjected to a Public Participation Process from 02 August 2021 to 01 September 2021 (both days inclusive). These reports have been updated from 'Draft' to 'Final' and the changes from 'Draft' to 'Final' have been reflected on Page ii of each Final Motivational / Amendment Report. | Volume I: Final Amendment Report |
| 8 | It has been mentioned on page 11 of the motivational report for Paulputs North that there is uncertainty regarding the preferred BESS choice and different BESS technology has been considered. You are advised to indicate the preferred BESS technology in the final amendment report as well as the description of the impacts assessment and how such impacts would be mitigated. | The Final Motivational / Amendment Report for Paulputs North WEF has been updated to reflect the preferred BESS technology (Section 3.2.2) and impact assessment of the BESS technology (Section 9 – 11). | Volume I: Final Amendment Report |
| 9 | On page 4 of the draft motivation reports (Paulputs North WEF, South WEF and Paulputs North WEF grid connection) it is stated that authorised Paulputs WEF, grid connection and substation was proposed to be located approximately 35km north-east of Pofadder while in the EA it is stated that the site is located 50km from north east of Pofadder. Please note that any change in detail in the EA must be applied for and a motivation for that amendment must be provided. Therefore, you are required to | The respective amendment has been added to the Amended / Updated Application Form, and is contained within the Matrix (Appendix 8 of the Application Form). Changes are now reflected in both the Amended / Updated Application form as well as corresponding Final Motivational / Amendment Reports. | Amended / Updated Application Form<br>Volume I: Final Amendment Report |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | provide the correct details (distance) in the final amendment report taking into consideration the information in the EA and the FEIAr. In addition, amendment of such must be included in the amendment application if the information is incorrect. | Reasons for the changes to the distance as were indicated in the draft motivation reports (Paulputs North WEF, South WEF and Paulputs North WEF grid connection) is that the approved EIA and subsequent EA incorrectly represented the true distance of the facility (300 MW Paulputs Wind Energy Facility) to Pofadder at being 50 km away. This has been corrected to be more specific (35 km) in terms of the distance from the town of Pofadder to the facility, in the draft motivation reports (Paulputs North WEF, South WEF and Paulputs North WEF grid connection), and carried through to the Final Motivational / Amendment Reports. | |
| 10 | You are required to provide all the details of the original EA that relates to each of the splits and ensure that correct details of the EA are provided in the relevant splits. | The Amended / Updated Application Form has been amended/updated and is being submitted with the final motivational reports.<br>Separate matrix letters detailing the required amendments as well as reasons for the proposed amendments has been appended to the Amended / Updated Application Form. Refer to Appendix 8 of the Amended / Updated Application Form.<br>Changes are now reflected in both the Amended / Updated Application form as well as corresponding Final Motivational / Amendment Reports. | Amended / Updated Application Form<br>Volume I: Final Amendment Report |
| 11 | Furthermore, ensure that the total area of the development sites of the three splits tallies with the area of the development site as authorised in the EA. | These changes are now reflected in both the Amended / Updated Application form as well as corresponding Final Motivational / Amendment Reports. | Amended / Updated Application Form<br>Volume I: Final Amendment Report |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| 12 | Ensure that all the properties affected by the authorised development are reflected correctly in relation to amendment 2 on page 6 of the Paulputs North WEF grid connection amendment report and page 7 of both Paulputs South and North WEF reports. | All the properties affected by the authorised development are reflected correctly in relation to each proposed amendment.<br>Properties as contained in the Application Form submitted with the Draft motivational report and Draft Motivational / Amendment Reports remain unchanged in the Amended / Updated Application and Final Motivational / Amendment Reports. | Amended / Updated Application Form<br><br>Volume I: Final Amendment Report |
| 13 | It is indicated on page 9 of the draft motivation report (Paulputs North WEF) that the BESS will occupy temporary lay down area of 1,5ha whereas in the EA the laydown area is 1ha, please explain this discrepancy. The motivational report on page 1 indicated that the BESS will be located in the area authorised for temporary laydown. Therefore, you are advised to amend this and ensure the BESS located is shown on the final layout for this facility in relation to the approved laydown area location. | This was a typographical error of the EAP. The authorised area of 1 Ha for temporary storage will be occupied by the BESS. This change has been reflected in both the Amended / Updated Application form as well as corresponding Final Motivational / Amendment Report.<br>The location of the BESS is shown on Updated Figure 3. | Amended / Updated Application Form<br><br>Volume I: Final Amendment Report |
| 14 | You are required to confirm whether or not the double circuit 132 kV loop in loop out grid connection was assessed in the original EIA and is located within the assessed 300m corridor. Furthermore, you are required to indicate if there would be additional impacts as a result of this. | This comment does not relate to the proposed amendment application for the Paulputs North WEF. A response has been provided here for completeness. A single circuit 132 kV grid connection was assessed as part of the approved EIA/EMPr. This grid connection was assessed by specialists for a 300m wide corridor (150 m on either side of the overhead powerline).<br><br>The proposed amendment to a 132 kV Double Circuit loop in loop out grid connection has been assessed by the specialists and EAP. This line does not deviate from that which was approved and will be contained within the 300 m corridor | **Amendment 3:** Final Amendment Report of the Report titled: "132 kV Grid Connection for the Paulputs North WEF"<br><br>**Amendment 3:** Volume II: Proposed Amendment Specialist Studies |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | | previously assessed by specialists. No additional impacts are expected. By making this change from single circuit to double circuit, does not change the capacity of the connection, nor does it require any additional footprint. Therefore, the change does not trigger any listed activity nor does it trigger any additional impacts. | |
| 15 | On page 9 of the grid connection amendment report, you have included a 300m corridor. Please confirm whether the original EIA assessment assessed 300m corridor and refer to the relevant pages in the initial reports. Ensure that any change in the detail of the original EA is applied for and a motivation is provided for that change and an indication of the assessment of such. If not assessed, you are advised to verify if the changes would not trigger a listed activity in order to obtain authorisation through the correct process. | This comment does not relate to the proposed amendment application for the Paulputs North WEF. A response has been provided here for completeness.<br><br>The original EIA assessed a 300 m wide corridor (Reference: Final EIAR, Arcus, August 2019, Page ii; 10; 16; 106; and 114).<br><br>An extract from the original EIA reads: *"Internal reticulation between onsite substation Option A and Option C is approximately 6.5 km of overhead powerlines, assessed as a 300 m wide corridor by the specialists."*<br><br>In conclusion, this 300 m corridor was assessed during the original EIA and Amendment process and no Listed Activities are triggered. | **Amendment 3:** Final Amendment Report of the Report titled: "132 kV Grid Connection for the Paulputs North WEF"<br><br>**Amendment 3:** Volume II: Proposed Amendment Specialist Studies |
| 16 | Ensure that amendment 3 on page 8 of the amendment report (Paulputs North WEF) is stated correctly. | The amendment details for Amendment 3 were removed from the Paulputs North WEF amendment report.<br><br>The Amended / Updated Application Form and Final Amendment Report for the | Volume I: Final Amendment Report<br><br>**Amendment 3:** Final Amendment Report of the Report titled: "132 kV Grid Connection for the Paulputs North WEF" |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | | Paulputs WEF North Grid Connection states the Amendment details correctly. | Amended / Updated Application Form |
| 17 | It has been noted on page 48-49 of the reports (Paulputs North WEF and South WEF) that you have recommended inclusion of conditions to the EAs, you are required to provide a motivation for inclusion of these conditions to the EA. | A motivation for the inclusion of these conditions into the EA has been included in the respective Final Motivational / Amendment Reports. | Volume I: Final Amendment Report |
| 18 | The Department has noted on page 16 of the reports (Paulputs North and South WEF) that you are requesting condition 13 of the EA to be retained in the resultant splits (Paulputs North WEF and South WEF) but condition 14 and 15 to be removed from the EA. Please note that the three conditions are linked, therefore all three conditions must be complied with prior to the approval of the EMPr. | The EAP is in agreement with the DFFE. The EAP has thus amended the Final Amendment Report(s) to reflect that Condition 13, 14 and 15 be retained as is in the new EA/s (see Section 3, Table 3-3 in the respective Final Amendment Reports).<br>In addition, the Application Form has been amended/updated and is being submitted with the final motivational reports. A matrix detailing the required amendments as well as reasons for the proposed amendments has been appended to the application form for each amendment. Refer to Appendix 8 of the Amended / Updated Application Form. | Volume I: Final Amendment Report<br>Amended / Updated Application Form |
| 19 | You have requested the deletion of condition 19-20, please confirm whether an audit report has been compiled for this development as these conditions require a compilation of an audit report and condition 21 22 and 23 are linked to the two aforementioned conditions. In addition, it must be noted that if the audit was undertaken, it was for facility prior the splitting, therefore, this should be communicated and agreed with the relevant authority undertaking the audit of the development prior removing such conditions. | The EAP confirms that no audit report has been conducted. The EAP has thus amended the Final Amendment Report(s) to reflect that Condition 19 - 23 be retained as is in the new EA/s (see Section 3, Table 3-3 in the respective Final Amendment Reports).<br>In addition, the Application Form has been amended/updated and is being submitted with the final motivational reports. A matrix detailing the required amendments as well as reasons for the proposed amendments has been appended to the application form for | Volume I: Final Amendment Report<br>Amended / Updated Application Form |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | | each amendment. Refer to Appendix 8 of the Amended / Updated Application Form. | |
| 20 | In the grid connection draft motivation report, you have requested the deletion of condition 14 of the EA and indicated that a generic EMPr will be submitted for approval instead. Please note that the generic EMPr is required for new applications for EA that trigger activity 11 of Listing Notice 1 and activity 09 of Listing Notice 2 not for an amendment application. | This comment does not relate to the proposed amendment application for the Paulputs North WEF. A response has been provided here for completeness.<br>The generic EMPr has been removed and will not be submitted with the final Paulputs North WEF Grid Connection Report (Amendment 3) (separate report).<br><br>It must be noted that the EMPr appended to the Final Motivation Report for (Amendment 3) Paulputs North WEF Grid Connection Report derived from the Paulputs North WEF (this amendment) EMPr which was made available for public comment and review during this amendment application process. | **Amendment 3:** Volume I: 132 kV Grid Connection for the Paulputs North Wind Energy Facility, Northern Cape Province - Appendix B: EMPr. |
| 21 | Additionally, a generic EMPr is not required for the (Paulputs North WEF grid connection) rather an EMPr that is derived from the original EMPr taking into consideration the proposed amendments. | This comment does not relate to the proposed amendment application for the Paulputs North WEF. A response has been provided here for completeness.<br><br>The generic EMPr has been removed and will not be submitted with the final Paulputs North WEF Grid Connection Report (Amendment 3) (separate report).<br><br>It must be noted that the EMPr appended to the Final Motivation Report for (Amendment 3) Paulputs North WEF Grid Connection Report derived from the Paulputs North WEF (this amendment) EMPr which was made | **Amendment 3:** Volume I: 132 kV Grid Connection for the Paulputs North Wind Energy Facility, Northern Cape Province - Appendix B: EMPr. |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | | available for public comment and review during this amendment application process. | |
| 22 | Furthermore, generic EMPrs have been appended to the reports (Paulput North WEF grid connection and Paulput North WEF), please note that a generic EMPr is only required for a new application for EA that triggers activity 11 of Listing Notice 1 and activity 09 of Listing Notice 2. Therefore, ensure that the Paulputs North WEF EMPr includes onsite substation. | The Generic EMPr has been removed from the Final Amendment Report of Paulputs North WEF.<br><br>The Paulputs North WEF EMPr includes all relevant management measures relating to the WEF, Substation and BESS. | Volume I: Final Amendment Report – Appendix B: EMPr. |
| 23 | Ensure that a layout map is provided for each of the splits requested, with clear legend that reflect details on the map, showing sensitive areas and buffers, existing and proposed structures. | The layout maps provided for each of the splits requested is provided with clear legends that reflect details on the map, showing sensitive areas and buffers, existing and proposed structures. | Figure 3: Proposed Amendment Layout. |
| | **Public Participation** | | |
| 24 | Please ensure that comments from all relevant stakeholders are submitted to the Department with the final Motivation reports. This includes but not limited to the Northern Cape Department of Environment and Conservation, South African Heritage Resources Agency (SAHRA), the Department of Forestry, Fisheries and the Environment: Directorate Biodiversity and Conservation at BCAdmin@environment.gov.za; Department of Rural Development and Land Reform; Khâi Ma Local Municipality, Kai !Garib Local Municipality, Namakwa District Municipality and Department of Water and Sanitation; Department of Transport, Roads and Public Works; ESKOM; Air Traffic and Navigation Services SOC Limited (ATNS); Civil Aviation Authority; Department of Social Development; SENTECH; Telkom SA Limited; Southern African Large Telescope (SALT); Birdlife South Africa and South African Astronomical Observatory (SAAO). | All comments as received during the Public Participation Process are contained as Appendix C 6 of each Final Amendment Report.<br><br>The I&AP database of the authorised Paulputs WEF EIA (Arcus, 2019) process was used as a baseline for the respective amendments and has been updated throughout the environmental regulatory process (Appendix C). Registration of I&APs has continued throughout the process, and the I&AP database has been updated accordingly, based on comments received.<br><br>All comments are included in the Comments and Responses Table, and responded to and | Volume I: Appendix C: Public Participation Report |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | | addressed by the project team, i.e. EAP, Applicant and Specialists as applicable. The Comments and Responses Report have been provided as Appendix C 7 of each Final Amendment Report.<br><br>Formal Comment has been received from: SAHRA, DFFE, DFFE: BDC.<br>Correspondence has been from: ESKOM, Department of Water and Sanitation, Department of Rural Development and Land Reform, AgriSA, NRA as well as general stakeholders (IPPs, Landowners and other Interested Parties). | |
| 25 | Furthermore, ensure that all issues raised and comments received during the circulation of the draft motivation reports from registered I&APs and organs of state which have jurisdiction in respect of the proposed activity are adequately addressed in the final motivation report. | Formal comments received from DFFE, DFFE: BDC and SAHRA have been addressed in Appendix C 6 of the Public Participation Report of each Final Amendment Report, and addressed (where necessary) within the respective Final Motivation / Amendment Reports and EMPr. | Volume I: Appendix B; and Appendix C. |
| 26 | Proof of correspondence with the various stakeholders must be included in the final motivation report. This must indicate that this draft motivation report has been subjected to 30 days public participation process, stating the start and end date of the PPP. Should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments. | A final call for comment was sent to the I&AP Database on 03 September 2021. I&APs were provided further opportunity to comment on the draft reports until 08 September 2021.<br><br>This correspondence has been included in Appendix C 4 of each Final Amendment Report.<br><br>Any comment received during this time has been included in Appendix C 6 and Appendix | Volume I: Appendix C: Public Participation Report |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | | C 7 of the Public Participation Report of each Final Amendment Report. | |
| | **General** | | |
| 27 | You are further reminded to comply with Regulation 32(1)(a) of the NEMA EIA Regulations, 2014, as amended, which states that:<br><br>"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 –<br><br>(a) a report, reflecting—<br>(i) an assessment of all impacts related to the proposed change;<br>(ii) advantages and disadvantages associated with the proposed change; and<br>(iii) measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and<br>(iv) any changes to the EMPr;<br><br>which report-<br>(aa) had been 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, and<br>(bb) reflects the incorporation of comments received, including any comments of the competent authority." | The EAP confirms that the Final Amendment Reports complies with Regulation 32(1)(a) of the NEMA EIA Regulations, 2014, as amended. | Volume I and II: Final Amendment Report |
| 28 | Should there be significant changes or new information that has been added to the motivation report or EMPr which changes or information was not contained in the reports or plans consulted on during the initial public participation process, you are required | The EAP confirms that there has been no significant changes or new information that has been added to the motivation report or EMPr which changes or information was not | n/a |

| No. | Comment from DFFE | EAP Response | Section in the Final AR |
|---|---|---|---|
| | to comply with Regulation 32(1)(b) of the NEMA EIA Regulations, 2014, as amended, which states: "the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority – (b) a notification in writing that the report will be submitted within 140 days of receipt of the application by the competent authority, as significant changes have been made or significant new information has been added to the report, which changes or information was not contained in the report consulted on during the initial public participation process contemplated in subregulation (1)(a) and that the revised report will be subjected to another public participation process of at least 30 days". | contained in the reports or plans consulted on during the initial public participation process. | |
| 29 | In the event where subregulation (1)(b) applies, the report, which reflects the incorporation of comments received, including any comments of the competent authority, must be submitted to the competent authority within 140 days of receipt of the application by the competent authority. | The EAP confirms that subregulation (1)(b) does not apply. | n/a |
| 30 | Should you fail to meet any of the timeframes stipulated in Regulation 32 of the NEMA EIA Regulations, 2014, as amended, your application will lapse. | Timeframes stipulated are being adhered to in this application. | n/a |
| 31 | You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department. | The Applicant / EAP takes note of this and confirms that no activity has / will commence without a positive environmental authorisation. | n/a |

## 2 DETAILS OF THE AUTHORISED PAULPUTS WEF AND GRID CONNECTION

The Paulputs WEF EIA was finalised and submitted to the DFFE in August 2019. Paulputs Wind Energy Facility (Pty) Ltd received a favourable EA, subject to various conditions.

The authorised Paulputs WEF, grid connection and substation is located approximately 35 km north-east of Pofadder and approximately 85 km north-west of Kakamas in the Northern Cape Province[5] (Table 2-1).

The authorised Paulputs WEF is situated in two district municipalities, the Namakwa District Municipality and the ZF Mgcawu District Municipality, and within the Khâi-Ma Local Municipality and the Kai !Garib Local Municipality (Figure 1).

***Table 2-1: Development Area Co-ordinates of the authorised Paulputs WEF and infrastructure***

| Reference Point | Latitude | Longitude |
|---|---|---|
| **WEF Development Area Co-ordinates** | | |
| A | 28°52’58” S | 19°41’30” E |
| B | 28°54’45” S | 19°47’05” E |
| C | 28°55’07” S | 19°46’53” E |
| D | 28°57’39” S | 19°47’57” E |
| E | 29°00’21” S | 19°45’06” E |
| F | 28°59’42” S | 19°42’00” E |
| G | 28°57’14” S | 19°39’29” E |
| H | 28°55’39” S | 19°40’44” E |
| **Grid Connection (Option C) Development Area Co-ordinates** | | |
| Option C - Start | 28°58’21” S | 19°45’33” E |
| Option C - Middle | 28°53’24” S | 19°41’27” E |
| Option C - End | 28°50’45” S | 19°41’43” E |
| **On-Site Substation (Option A) Development Area Co-ordinates** | | |
| North Corner | 28°56'25.66"S | 19°42'7.13"E |
| West Corner | 28°56'32.05"S | 19°42'7.70"E |
| South Corner | 28°56'32.24"S | 19°42'16.53"E |
| East Corner | 28°56'25.89"S | 19°42'16.86"E |

PWEF received authorisation for the Paulputs 300 MW WEF (Figure 1 and Table 2-2, DFFE Reference 14/12/16/3/3/2/1120), which included the following technical details – extracted from the authorised EIA report (Arcus, August 2019).

***Table 2-2: Technical Details of the Authorised WEF and Grid Connection***

| Component | Description/Dimensions |
|---|---|
| **Paulputs WEF** | |

[5] A distance of 50 km was previously provided in the Arcus 2019 EIA. This is incorrect. Taken from the centre of Pofadder Town, to the centre of the authorised 300 MW Paulputs WEF, the distance is approximately 35 km.

| Component | Description/Dimensions |
|---|---|
| **Location of the site** | 50 km northeast of Pofadder, Northern Cape Province.<br>Ward 1 of the Khai Ma Local Municipality of DC6 – Namakwa District Municipality. |
| **Farm and SG Codes** | Scuitklip 92/2 C03600000000009200002<br>Scuitklip 92/3 C03600000000009200003<br>Scuitklip 92/5 C03600000000009200005<br>Lucasvlei 93/1 C03600000000009300001<br>Lucasvlei 93/2 C03600000000009300002<br>Lucasvlei 93/4 C03600000000009300004 |
| **Facility Area** | The proposed project site is approximately 10 000 hectares. This is the total area covered, in which all components will be located. The actual development footprint will be approximately 2 % of this. |
| **Number of Turbines** | Up to 75 |
| **Site Access** | N14 (NW and SE access - including abnormal loads) and MN759 (NW access only - no abnormal loads) |
| **Hub Height from ground level** | Up to 140 m |
| **Blade Length** | Up to 90 m |
| **Rotor Diameter** | Up to 180 m |
| **Area occupied by inverter transformer stations/substations** | Approximately 4 hectares |
| **Capacity of on-site substation** | 132 kV on-site substation |
| **Authorised Paulputs Grid Connection** | |
| **Farm and SG Codes** | Scuitklip 92/2<br>C03600000000009200002 |
| **Height of pylons** | Maximum of 30 m high |
| **Length of transmission line** | Maximum 12.5 km |
| **Types of poles used** | Both monopoles and lattice structures are being considered |
| **Area occupied by pylon servitude** | Width 31 m x 12.5 km = 39 hectares |
| **Transmission capacity** | 132 kV line, evacuating a maximum of 300 MW |
| **Area occupied by both permanent and construction laydown areas** | Laydown areas used are the same as for the WEF |
| **Area occupied by buildings** | The O&M complex will form part of the on-site 200 m x 200 m substation compound |
| **Length of service road** | 26.8 km (worst case scenario) |
| **Width of service road** | 3 – 6 m wide |
| **Height of fencing** | Maximum 3 m only around on-site substation and buildings |
| **Type of fencing** | Wired mesh / chain link fence not electrified |

# 3 DETAILS OF THE PROPOSED AMENDMENT – 150 MW PAULPUTS NORTH WEF

This section provides the technical details and design parameters of the amendment application for the Paulputs North WEF. Additionally, this chapter serves to provide insight on the choice of preferred location and feasible specifications for the construction, operation and decommissioning of Paulputs North WEF.

The technical details of the Paulputs North WEF are included in Table 3-1 below and Figure 2 and Figure 3 as part of the amendment process for approval.

***Table 3-1: Amendment Proposed to the Authorised 300 MW Paulputs WEF Applicable to the Paulputs North WEF***

| | **Authorised** | **Amendment** |
|---|---|---|
| **Holder of Authorisation** | Paulputs Wind Energy Facility (Pty) Ltd | Paulputs Wind Energy Facility North (RF) (Pty) Ltd |
| **Name and Capacity of the Development** | The 300 MW Paulputs Wind Energy Facility (WEF) and associated 132 kV grid connection, Northern Cape Province. | The 150 MW Paulputs North Wind Energy Facility (WEF), On-Site Substation[6] and a Battery Energy Storage System, Northern Cape Province. |
| **Scope** | Megawatt Capacity of 300 MW | Megawatt Capacity up to 150 MW |
| | 75 Wind Turbine Generators | Up to 40 Wind Turbine Generators |
| | Grid Connection Infrastructure:<br><br>Single Circuit, 132 kV Grid Connection. | Grid Connection Infrastructure: n/a[7]<br><br>Not included in this Split of the EA (refer to Amendment 3) (separate report). |
| | 132 kV on-site Substation | 132 kV on-site Substation |
| | | Addition of Battery Energy Storage System (within the authorised footprint) |
| **Wind Turbine Generator Specifications** | Maximum height to tip of the blade of 230 m<br>Hub height of up to 140 m<br>Rotor diameter of up to 180 m<br>A blade length of up to 90 m | Maximum height to tip of the blade of 290 m<br><br>Hub height of up to 180 m<br>Rotor diameter of up to 220 m<br>A blade length of up to 110 m |

***Table 3-2: Co-ordinates of the Proposed Paulputs North WEF***

| **Reference Point** | **Latitude** | **Longitude** |
|---|---|---|
| Paulputs North WEF Development Area Co-ordinates | | |
| A | 28°52’58” S | 19°41’30” E |
| B | 28°54’45” S | 19°47’05” E |
| C | 28°59'38.21"S | 19°41'56.37"E |
| D | 28°57’14” S | 19°39’29” E |

[6] The onsite substation is already authorised and the BESS is an addition and part of this amendment application. The BESS does not trigger any new of specified listed activities and will be constructed within an already authorised area of the development site.
[7] The grid connection will not be included in this EA, if approved, as it is requested that it is split from the EA and is being applied to have its own separate EA.

| Reference Point | Latitude | Longitude |
|---|---|---|
| E | 28°55’39” S | 19°40’44” E |
| Authorised On-Site Substation (Option A) Development Area Co-ordinates | | |
| North Corner | 28°56'25.66"S | 19°42'7.13"E |
| West Corner | 28°56'32.05"S | 19°42'7.70"E |
| South Corner | 28°56'32.24"S | 19°42'16.53"E |
| East Corner | 28°56'25.89"S | 19°42'16.86"E |
| Battery Energy Storage System | | |
| BESS (located within the authorised Temporary Laydown) | 28°56'28.20"S | 19°42'14.57"E |

## 3.1 Amendments proposed to the conditions of the EA for the Paulputs North Wind Energy Facility

Table 3-3 below describes the proposed amendments to the conditions of the EA for the Paulputs North WEF pertaining to:

1. Activity Description, Applicant Details and Activity Location;
2. Listing Notice Activities;
3. Technical Details; and
4. Conditions of the Environmental Authorisation to be Retained or Changed.

The table further provides reason and motivations for the proposed amendments.

***Table 3-3: Conditions of the Authorisation to be Retained, Changed or Removed for the Paulputs North WEF***

| CONDITION IN THE EA WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|
| 1. Amendment to the Activity Description (Cover page) | | |
| Application for Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended: The 300 MW Paulputs Wind Energy Facility (WEF) and its associated 132kV Grid Connection, Northern Cape Province. | Application for Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended: The 150 MW Paulputs North Wind Energy Facility (WEF), On-site Substation and Battery Energy Storage System (BESS), Northern Cape Province. | Paulputs Wind Energy Facility (RF) (Pty) Ltd are proposing to give permission to Paulputs Wind Energy Facility North (RF) (Pty) Ltd and Paulputs Wind Energy Facility South (Pty) Ltd to **split and amend** the Environmental Authorisation (EA) into three amendment applications for EA. This amendment applies to the split of the 150 MW Paulputs North Wind Energy Facility.<br><br>Paulputs Wind Energy Facility North (RF) (Pty) Ltd ('Paulputs North' – The Applicant) intents to construct and operate a 150 MW WEF (Paulputs North WEF)[8] consisting of up to 40 turbines, with a hub height of up to 180 m, blade length of up to 110 m and a rotor diameter of up to 220 m. This authorisation will also include the authorised Paulputs WEF preferred on-site substation and a proposed Battery Energy Storage Systen in the area authorised for temporary laydown. All infrastructure is to be located to the west of the N14 Highway. |
| 2. Amendment of the Applicant and Project Location (Page 1 of the EA) | | |
| Holder of the authorisation:<br>Paulputs Wind Energy Facility (RF) (Pty) Ltd<br>Location of Activity<br>Portion 2 of the Farm Scuitklip 92;<br>Portion 3 of the Farm Scuitklip 92;<br>Portion 5 of the Farm Scuitklip 92;<br>Portion 1 of the Farm Lucasvlei 93;<br>Portion 2 of the Farm Lucasvlei 93;<br>Portion 4 of the Farm Lucasvlei 93; | Holder of the Authorisation:<br>Paulputs Wind Energy Facility North (RF) (Pty) Ltd<br>Location of the Activity:<br>Portion 2 of the Farm Scuitklip 92;<br>Portion 3 of the Farm Scuitklip 92;<br>Portion 5 of the Farm Scuitklip 92;<br>Portion 2 of the Farm Lucasvlei 93;<br>Portion 4 of the Farm Lucasvlei 93;<br>Khai-Ma and Kai !Garib Local Municipalities; | Portion 1 of the Farm Lucasvlei 93 is no longer a directly impacted farm portion for the proposed amendment.<br>The holder of the Environmental Authorisation must change to reflect that of the respective split. The new holder of the EA will become Paulputs Wind Energy Facility North (RF) (Pty) Ltd. |

[8] Paulputs North WEF and Paulputs South WEF will be 150MW each. These WEF's are considered the 'split' of the authorised 300 MW Paulputs WEF

| CONDITION IN THE EA WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|
| Khai-Ma and Kai !Garib Local Municipalities;<br>ZF Mgcawu and Namakwa District Municipalities;<br>Northern Cape | ZF Mgcawu and Namakwa District Municipalities;<br>Northern Cape | |
| 3. Listing Notice Activities (Page 3 to Page 6) | | |
| Remain Unchanged | Remain Unchanged | - |
| 4. Amendment of the Activity Description (Page 7 of the EA) | | |
| For the 300 MW Paulputs Wind Energy Facility (WEF) and its associated 132kV grid connection in the Northern Cape Province, hereafter referred to as "the property". | For the 150 MW Paulputs North Wind Energy Facility (WEF), On-site Substation and Battery Energy Storage System (BESS), Northern Cape Province, hereafter referred to as the "proposed development". | The holder of the Environmental Authorisation must change to reflect that of the respective split. The new holder of the EA will become Paulputs Wind Energy Facility North (RF) (Pty) Ltd.<br>Further, the 132 kV grid connection must be removed from this EA. The 132 kV Grid Connection has been split from the authorised EA and is being dealt with in a separate Part II Amendment Application Process. |
| 5. Amendment to the Technical Description (Page 8 of the EA) | | |
| The WEF will comprise of the following:<br>• A maximum of 75 turbines with a total generation capacity of 300 MW.<br>• The maximum height to tip of the blade will be 230 m, with a hub height of up to 140 m, a rotor diameter of up to 180 m and a blade length of up to 90 m.<br>• Foundations, hardstands and permanent laydown areas associated with the wind turbines of approximately 0.8Ha.<br>• Internal access roads of approximately 80 km in length (mostly 6m wide but up to 12m, average 8m).<br>• Medium voltage cabling between turbines and the switching station, to be laid underground where technically feasible.<br>• Overhead medium voltage cables between onsite substations where necessary. | The WEF will comprise of the following:<br>• A maximum of 40 turbines with a total generation capacity of 150 MW.<br>• The maximum height to tip of the blade will be 290 m, with a hub height of up to 180 m, a rotor diameter of up to 220 m and a blade length of up to 110 m.<br>• Foundations, hardstands and permanent laydown areas associated with each wind turbines base is approximately 0.8 Ha.<br>• Internal access roads with a combined length of approximately 45 km in length (mostly 6 m wide but up to 12 m, average 8 m).<br>• Medium voltage cabling between turbines and the switching station, to be laid underground where technically feasible.<br>• Overhead medium voltage cables between onsite substations where necessary. | • Paulputs North WEF (split) will have a generating capacity of up to 150 MW and in this instance up to 40 wind turbine generators (WTG) are required.<br>• The authorised turbine model with specifications of 140 m hub height and 180 m rotor diameter is no longer the preferred wind turbine technology. Paulputs North is therefore applying to amend the authorised turbine specifications and change the hub height to up to 180 m and the rotor diameter to up to 220 m to facilitate the most efficient turbine model and to further future proof the project amidst rapid technology developments.<br>• Since the WTG are larger, the base of the foundations must be increased.<br>• The length of internal access roads has been halved for the respective split WEFs. |

<table>
<tr><th>CONDITION IN THE EA WORDING</th><th>PROPOSED AMENDMENT</th><th>REASON FOR AMENDMENT</th></tr>
<tr><td>• One onsite substation compound of approximately 4ha consisting of: onsite substation 1.1ha, offices of 0.5ha, permanent laydown 1ha, and temporary construction yard 1 ha; and,<br>• An overhead 132kV power line will be constructed over a distance of approximately 12.5km (Option C).</td><td>• One onsite substation compound of approximately 4 ha consisting of: onsite substation of 1.1 ha, offices of 0.5ha, permanent laydown of 1ha, and temporary construction yard of 1 ha. A Battery Energy Storage is to be located within the area earmarked for temporary construction yard.</td><td>• The Applicant will utilise Battery Energy Storage Systems (BESS) to diminish the invariability of energy supply into grid – thus making power supply into the national Eskom grid more reliable as well as to power the operation of the Paulputs North when the national grid is strained by high (or peak) demand, often resulting in load-shedding. This facility has been earmarked to be placed within the 1 ha authorised and previously assessed temporary laydown area.<br>• The 132 kV grid connection must be removed from this EA. The 132 kV Grid Connection has been split from the authorised EA and is being dealt with in a separate Part II Amendment Application Process.</td></tr>
<tr><td colspan="3">6. Amendment of the WEF Technical Details (Page 8 of the EA)</td></tr>
<tr><td>WEF Technical Details:<table><tr><th>Component</th><th>Description/Dimensions</th></tr><tr><td>Location of the site</td><td>50 km northeast of Pofadder, Northern Cape Province.</td></tr><tr><td>Facility Area</td><td>The development site is approximately 10 000 hectares. This is the total area covered, in which all components will be located. The actual development footprint will be approximately 2 % of this.</td></tr><tr><td>Number of Turbines</td><td>Up to 75</td></tr><tr><td>Site Access</td><td>N14 (NW and SE access - including abnormal loads) and MN759 (NW access only - no abnormal loads)</td></tr></table></td><td>WEF Technical Details:<table><tr><th>Component</th><th>Description/Dimensions</th></tr><tr><td>Location of the site</td><td>35 km northeast of Pofadder, Northern Cape Province.<br>Ward 1 of the Khai Ma Local Municipality of DC6 – Namakwa District Municipality.<br>Ward 9 of the Kai !Garib Local Municipality of DC8 – ZF Mcgawu District Municipality</td></tr><tr><td>Facility Area</td><td>The proposed amendment site is approximately 8 000 hectares. This is the total area covered, in which all components will be located. The actual development footprint will be approximately 1 % of this.</td></tr></table></td><td>• The distance to Pofadder as previously assessed in the approved EIA was incorrect. The facility is located 35 km north east of Pofadder measured from the centre of Pofadder town to the centre of the site.<br>• It is pertinent to include the full location of the proposed development.<br>• Since this amendment pertains to the split, the size of the facility is thus reduced. It must be noted that the size of 10 000 Ha previously determined for the authorised PWEF referred to the buildable area only. The total facility size for the authorised PWEF (2019) is approximately 12 000 Ha excluding the servitude footprint of 39 hectares (= 31 m x 12.5km).<br>• Since this amendment pertains to the split, the number of WTG is thus reduced.<br>• The authorised turbine model with specifications of 140 m hub height and 180 m rotor diameter is no longer the preferred wind turbine technology. Paulputs North therefore, wishes to</td></tr>
</table>

<table>
<tr><th>CONDITION IN THE EA WORDING</th><th>PROPOSED AMENDMENT</th><th>REASON FOR AMENDMENT</th></tr>
<tr>
<td>
<table>
<tr><td>Hub Height from ground level</td><td>Up to 140 m</td></tr>
<tr><td>Blade Length</td><td>Up to 90 m</td></tr>
<tr><td>Rotor Diameter</td><td>Up to 180 m</td></tr>
<tr><td>Area occupied by inverter transformer stations/substations</td><td>Approximately 4 hectares</td></tr>
<tr><td>Capacity of on-site substation</td><td>132 kV</td></tr>
</table>
</td>
<td>
<table>
<tr><td>Number of Turbines</td><td>Up to <u>40 (T1-T40)</u></td></tr>
<tr><td>Site Access</td><td>N14 (NW and SE access - including abnormal loads) and MN759 (NW access only - no abnormal loads)</td></tr>
<tr><td>Hub Height from ground level</td><td>Up to <u>180 m</u></td></tr>
<tr><td>Blade Length</td><td>Up to <u>110 m</u></td></tr>
<tr><td>Rotor Diameter</td><td>Up to <u>220 m</u></td></tr>
<tr><td>Area occupied by inverter transformer stations/substations</td><td>Approximately 4 hectares</td></tr>
<tr><td>Capacity of on-site substation</td><td>132 kV</td></tr>
<tr><td><u>Battery Energy Storage System (BESS)</u></td><td><u>Battery Energy Storage System to be installed on the area earmarked for Temporary Laydown Area</u></td></tr>
</table>
</td>
<td>amend the authorised turbine specifications and change the hub height to up to 180 m and the rotor diameter to up to 220 m to facilitate the most efficient turbine model and to further future proof the project amidst rapid technology developments.<br>• The Applicant is applying to utilise Battery Energy Storage Systems (BESS) to diminish the invariability of energy supply into grid – thus making power supply into the national Eskom grid more reliable as well as to power the operation of the Paulputs North when the national grid is strained by high (or peak) demand, often resulting in load-shedding. This facility has been earmarked to be placed on the 1 ha authorised and previously assessed as temporary laydown area.</td>
</tr>
<tr><td colspan="3">7. Amendment of the Grid Connection Technical Details (Page 9 of the EA)</td></tr>
</table>

<table>
<tr><th>CONDITION IN THE EA WORDING</th><th>PROPOSED AMENDMENT</th><th>REASON FOR AMENDMENT</th></tr>
<tr><td>Grid Connection Technical Details:<br><table><tr><th>Component</th><th>Description/Dimensions</th></tr><tr><td>Height of Pylons</td><td>Maximum of 30m high</td></tr><tr><td>Length of Transmission Line</td><td>Maximum of 12.5km</td></tr><tr><td>Type of Poles used</td><td>Both monopoles and lattice structures are being considered</td></tr><tr><td>Area to be occupied by pylon servitude</td><td>Width 31m x 12.5km = 39 Hectares</td></tr><tr><td>Transmission capacity</td><td>132kV line, evacuating a maximum of 300MW</td></tr><tr><td>Area occupied by both permanent and construction laydown areas</td><td>Laydown areas to be used are the same as the WEF</td></tr><tr><td>Areas occupied by buildings</td><td>The O&M complex will form part of the on-site 200m x 200m substation compound</td></tr><tr><td>Length of service road</td><td>26.8km (worst case scenario)</td></tr><tr><td>Width of service road</td><td>3 – 6m wide</td></tr><tr><td>Height of fencing</td><td>Maximum of 3m only around on-site substation and buildings</td></tr></table></td><td>Removed</td><td>Component must be removed from the EA as it is being applied for as part of a separate amendment application (Amendment 3) for environmental authorisation.</td></tr>
</table>

| CONDITION IN THE EA WORDING | | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|---|
| Type of fencing | Wire Mesh / Chain link fence not electrified. | | |

8. Amendment to the Conditions of the Authorised EA

| AMENDMENT TYPE | CONDITION NO. | CONDITION WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|---|---|
| **Scope of Authorisation** | 1 | Power line option C and substation location A as part of the development of the 300 MW Paulputs Wind Energy Facility (WEF) as described above is hereby approved. | The 150 MW Paulputs North Wind Energy Facility (WEF), on-site substation and battery energy storage system, as described above is hereby approved. | Paulputs Wind Energy Facility (RF) (Pty) Ltd are proposing to give permission to Paulputs Wind Energy Facility North (RF) (Pty) Ltd and Paulputs Wind Energy Facility South (Pty) Ltd to **split and amend** the Environmental Authorisation (EA) into three amendment applications for EA. This amendment applies to the split of the 150 MW Paulputs North Wind Energy Facility.<br>Powerline option C is being split from this EA and an application for its own separate EA has been submitted to the department for authorisation. Therefore, any reference to grid connection for the Paulputs North WEF is being removed.<br><br>Paulputs Wind Energy Facility North (RF) (Pty) Ltd ('Paulputs North' – The Applicant) intents to construct and operate a 150 MW WEF[9] (Paulputs North WEF) consisting of up to 40 turbines, with a hub height of up to 180 m, blade length of up to 110 m and a rotor diameter of up to 220 m. This authorisation will also include the authorised Paulputs WEF preferred on-site substation and a proposed Battery Energy Storage Facility in the area authorised for temporary laydown. All infrastructure is to be located to the west of the N14 Highway. |
| | 2 – 3 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |

[9] Paulputs North WEF and Paulputs South WEF will be 150MW each. These WEF's are considered the 'split' of the authorised 300MW Paulputs WEF.

| AMENDMENT TYPE | CONDITION NO. | CONDITION WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|---|---|
| | 4 | The activities authorised may only be carried out at the property as described above | Activities authorised my only be carried out at the property as described in the amendment application. | Portion 1 of the Farm Lucasvlei 93 is no longer a directly impacted farm portion for the proposed amendment. |
| | 5 - 7 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| | 8 | Construction must be completed within five (05) years of the commencement of the activity on site | Construction must be completed within ten (10) years of the commencement of the activity on site. | This condition is impractical, based on the project programme and the nature and scale of the construction activities. It is proposed that this condition be amended to make provision for a 10-year period for construction to commence. |
| | 9 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Notification of Authorisation and Right to Appeal** | 10 - 11 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Commencement of the Activity** | 12 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Management of the Activity** | 13 - 18 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Frequency and Process of Updating the EMPr** | 19 - 23 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Monitoring** | 24 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Recording and Reporting to the Department** | 25 – 30 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Notification to Authorities** | 31 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Operation of the Activity** | 32 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |

| AMENDMENT TYPE | CONDITION NO. | CONDITION WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|---|---|
| **Site Closure and Decommissioning** | 33 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **Specific Conditions** | 34 - 36 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| | 37 | A construction and operational avifauna and bat monitoring plan must be developed and implemented according to the latest Birdlife South Africa/Endangered Wildlife Trust: Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in Southern Africa and the latest South African Bat Assessment Advisory Panel's (SABAAP) guidelines. | A construction and operational avifauna and bat monitoring plan must be developed and implemented according to the latest Birdlife South Africa/Endangered Wildlife Trust: Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in Southern Africa and the latest South African Bat Assessment Advisory Panel's (SABAAP) guidelines. A Bat management plan must be developed and implemented as recommended by the DFFE: BDC. | Comment received on 01 September 2021 from the Department of Forestry, Fisheries and Environment: Biodiversity Conservation requested that a Pre and Post Bat Monitoring Plan be developed for the proposed development. A bat management plan has been included in the EMPr. |
| | 38 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| | 39 | The results of the pre-construction bird and bat monitoring assessments including all recommendations proposed by the reports dated August 2019, must inform the final layout and the construction schedule of the facility. | The results of the pre-construction bird and bat monitoring assessments including all recommendations proposed by the reports dated August 2019 and February 2021, respectively, must inform the final layout and the construction schedule of the Paulputs North Wind Energy Facility. | To include the recommendations proposed in the Final Amendment Report. |
| | 40 | Anti-collision devices such as bird flappers must be installed | Remove the condition. | The 132 kV overhead powerline has been split from the existing EA, and is thus not applicable to this amendment, |

| AMENDMENT TYPE | CONDITION NO. | CONDITION WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|---|---|
| | | where power lines cross avifaunal corridors {e.g. grasslands, rivers, wetlands, and dams}. The input of an avifaunal specialist must be obtained for the fitting of the anti - collision devices onto specific sections of the line once the exact positions of the towers have been surveyed and pegged. Additional areas of high sensitivity along the preferred alignment must also be identified by the avifaunal specialist for the fitment of anti-collision devices. These devices must be according to Eskom's Transmission and EWT's Guidelines | | as internal turbine strings will be buried underground where technically feasible. |
| | 41 | All pylons to be constructed should make use of "bird friendly" structures, fitted with a bird perch, as per Eskom's Transmission and Endangered Wildlife Trust's (EWT) Guidelines | Remove the condition. | The 132 kV overhead powerline has been split from the existing EA, and is thus not applicable. |
| | 42 - 53 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |
| **General** | 54 | The recommendations of the EAP in the EIAr dated August 2019 and the specialist studies attached must be adhered to. In the event of any conflicting mitigation measures and conditions of the environmental authorisation, the specific condition of this environmental | The recommendations of the EAP in the EIAr dated August 2019 and the specialist studies attached must be adhered to, and <u>this includes the recommendations of the EAP in the Amendment Report dated September 2021 and the specialist studies attached.</u> In the event of any conflicting | This condition must be updated to reflect any additional recommendations / mitigations included in the final amendment report as well as EMPr. |

| AMENDMENT TYPE | CONDITION NO. | CONDITION WORDING | PROPOSED AMENDMENT | REASON FOR AMENDMENT |
|---|---|---|---|---|
| | | authorisation will take preference. | mitigation measures and conditions of the Environmental Authorisation, the specific condition of this Environmental Authorisation will take preference. | |
| | 55 - 56 | No change to the existing EA. Conditions to be included 'as is' in the new EA. | | |

## 3.2 Additional Project Components for this Amendment Application: Battery Energy Storage System (BESS)

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.

The function of the BESS will be to store peak kinetic energy produced by the Paulputs North WEF for use in the following ways:

- To power the operation of the Paulputs North WEF when the national grid is strained by high (or peak) demand, often resulting in load-shedding.
- To provide excess generation to the national grid which will assist with stabilizing electricity supply during peaks and troughs of demand.
- To reduce the impact caused by the variability and limited predictability of wind generation.

The preferred battery technology being considered is Lithium Ion (Li-Ion). Alternative technologies which have been considered by the Applicant include Flow, Solid-State, and/or Sodium Sulphur batteries.

The EAP has undertaken a high-level desktop study and risk assessment of the BESS for the proposed amendment. This is contained in Section 10 of the Final Amendment Report. This assessment provides for the risks associated with Battery Storage in general, as well as Proposed Design and Installation Considerations for the BESS.

The battery technologies that have been considered are explained further below, and compared in a table of advantages and disadvantages.

### *3.2.1 The NEMA and BESS*

As discussed in the Pre-Application meeting held with DFFE on 14 August 2020, the BESS will not trigger any listed activities on its own due to the fact that it is to be located on an area already authorised for storage related activity. Furthermore, activities relating to storage of dangerous goods, such as Activity 14 of Listing Notice 1 and Activity 10 of Listing Notice 3, will not be triggered by the proposed BESS installation, due to the following:

- A battery is not deemed to be a container; and
- The function of the battery is not for "storage" or "storage and handling" of a dangerous good. Electrolytes that are used within battery storage facilities: their function is deemed to be like transformers within substations: converting high voltage electricity to lower voltage electricity for further distribution.

Battery storage does not trigger any listed activities relating to the generation of electricity, as technology does not 'generate' electricity, it simply stores electricity generated by a renewable energy facility (Paulputs North WEF in this instance) and discharges the stored electricity as and when required by the grid.

### *3.2.2 BESS Technologies Considered*

Typically, BESS consist of multiple battery cells that are assembled together to form modules. Each cell contains a positive electrode, a negative electrode and an electrolyte. A module may consist of thousands of cells working in conjunction. Modules are normally packaged inside containers (similar to shipping containers) and these containers are delivered pre-assembled to the WEF site (Plate 3-1 shows the inside of one such container).

Paulputs North anticipates the placement of containers within the area currently authorised for temporary laydown. Ancillary (or associated) infrastructure will include (but not limited to):

- A battery room;
- Inverters;
- Switch gear room; and
- Supervisory Control and Data Acquisition (SCADA) equipment.

The containers will have approximate dimension ranges of: height 2 m - 5 m, width 1.5 m - 3 m, and length 7 m - 20 m. The containers are raised slightly off the ground and are bunded to prevent possible environmental damage resulting from any equipment malfunction. The proposed development is considering the option of stacking these containers vertically to a maximum of two container layers or a height of 10 m.

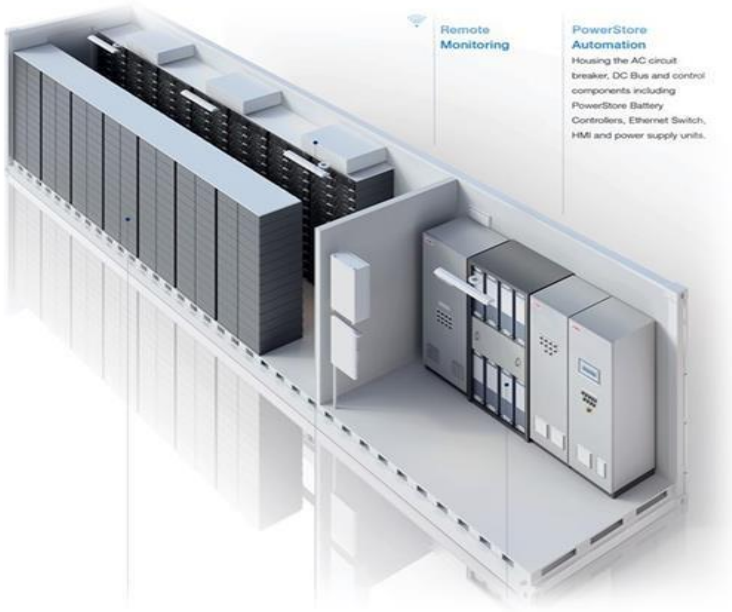


***Plate 3-1: Typical representation of how batteries and battery modules are housed and assembled.***

Preferred Technology - Lithium ion (Li-ion) batteries are the most common stationary battery in the market today. Simply put, the batteries consist of a graphite electrode and a lithium-based electrode immersed in a liquid. When the battery is in use, charged lithium atoms ions flow from the graphite electrode to the lithium-based electrode through the liquid, and that flow of charged particles is what generates electricity. When the battery is recharged the flow is reversed, sending the lithium ions back to the graphite anode where they are stored ready for discharge.

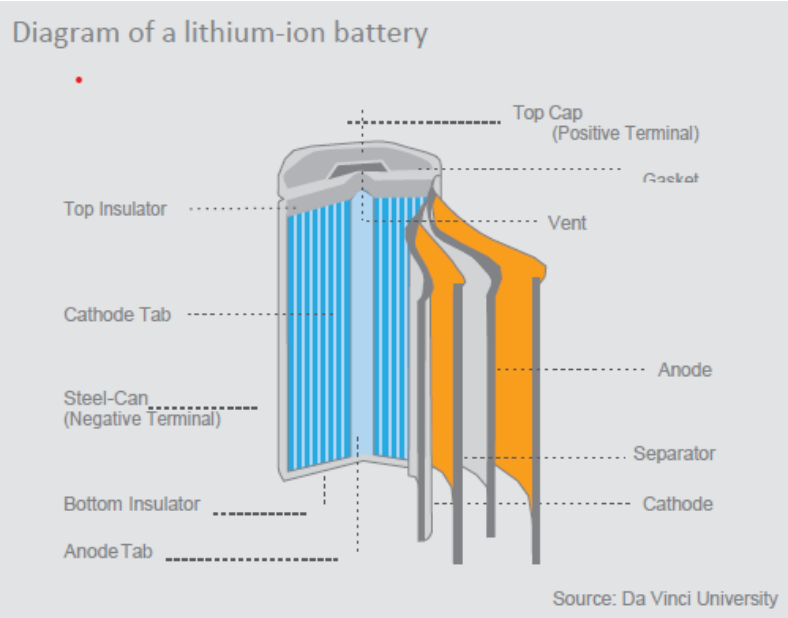


***Plate 3-2: Diagram of a Lithium-Ion Battery***

A sodium sulphur (NaS) battery is a molten state battery constructed from sodium (Na) and sulphur (S). The battery casing is the positive electrode while the molten core is the negative electrode. The battery operates at high temperatures of between 300 - 350 degrees Celsius (°C), while lower temperature versions are under development. In charging, the sodium ions are transported through the ion selective conductor to the anode reservoir. Discharge is the reverse of this process. Since sodium ions move easily across the ion selective conductor, electrons cannot, therefore there is no self-discharge. When not in use the batteries are typically left under charge so that they will remain molten and be ready for use when needed. If shut down and allowed to solidify, a reheating process is initiated before the batteries can be used again.

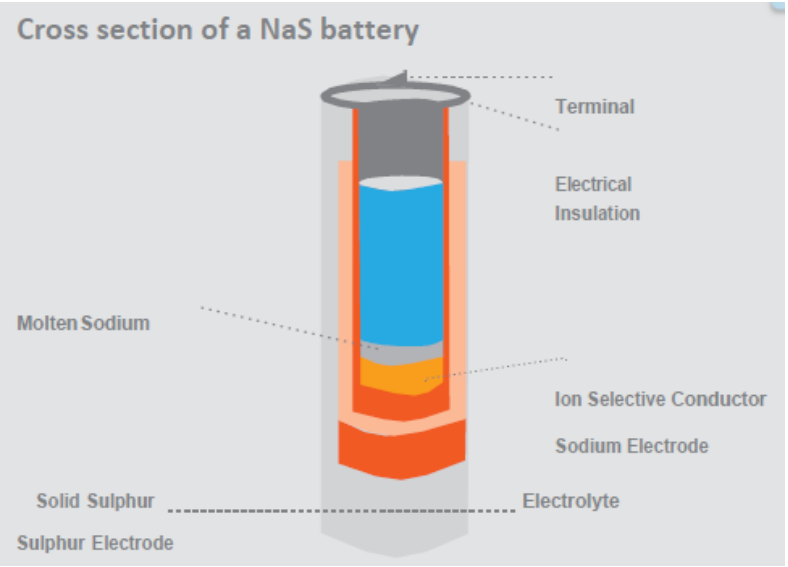


***Plate 3-3: Diagram of a Sodium-Sulphur Battery***

Solid State Battery is an acceptable solution to assist with reducing the fire risk Li-ion batteries pose. Unlike Li-Ion Batteries, Solid State Batteries have an ionic liquid made up of non-flammable molten salts with low melting points i.e. the electrolyte is considered a solid. Compared to Li-ion batteries with liquid electrolytes, SSBs offer an attractive option

owing to their potential in improving safety and achieving both higher power and high energy densities. The trade-off with this type of battery is that electrically charged atoms do not move as freely and easily through a solid as they do through a liquid, so thus making them less efficient at generating electricity.

Flow Batteries consist of two tanks of liquids that feed into electrochemical cells. The main difference between flow and conventional batteries is that flow batteries store the electricity in the liquid rather than in the electrodes. They're far more stable than Li-ion, they have longer lifespans, and the liquids are less flammable. Not only that, but a flow battery can be scaled up by simply building bigger tanks for the liquids. The most typical flow battery is vanadium flow battery.

Table 3-4 describes the most widely used technologies available in the market, and the most feasible technology for large utilities projects. It must be noted that the technology is constantly changing and evolving and as such the Applicant would utilise the best possible technology available at the time of placement.

***Table 3-4: The technology options for the BESS***

| Activity Alternative | Advantage | Disadvantage |
|---|---|---|
| **Preferred Technology: Li-Ion Batteries[10]** | • Lithium ion has the smallest installation footprint when compared to the technologies for the similar energy capacity.<br>• Li-ion batteries are able to tolerate more discharge cycles than other technologies.<br>• High efficiency. | • Negative effects of overcharging/ over discharging.<br>• Potential for issues associated with overheating (Certain Lithium chemistry's).<br>• The Lithium in this technology is considered hazardous / dangerous goods. |
| NaS Batteries | • Long life cycle.<br>• Able to tolerate a high number of charge/discharge cycles.<br>• ability to discharge fully with no effects to the performance. | • Low energy to size ratio.<br>• Heating may be required.<br>• Potential safety issues with the molten sodium.<br>• Has the potential to catch on fire. |
| Flow Batteries[11] | • More stable than Li-Ion battery.<br>• Are known to have the longest lifespan.<br>• Less flammable liquids.<br>• Technology is scalable for large grid infrastructure and renewable energy project. | • The liquids can be costly, so there's a greater up-front cost for the batteries.<br>• Not as efficient as Li-Ion Battery. |
| Steady State Battery[12] | • Potential to substitute Lithium for another electrode material.<br>• Marked improvement in safety at cell and battery levels: solid electrolytes are non-flammable when heated, unlike their liquid counterparts.<br>• It permits the use of innovative, high-voltage high-capacity materials, enabling denser, lighter batteries with better shelf- | • Reduced conductivity.<br>• Sourcing of a suitable electrolyte.<br>• Not as well researched and widely accepted as Li-Ion batteries.<br>• Narrow temperature range and cannot tolerate varying temperature. |

[10]Li-Ion Battery and Na-S Battery: https://ensia.com/features/battery-innovations-renewable-energy/
[11] Flow Battery: https://newatlas.com/energy/iron-aqds-flow-battery-usc/
[12] Solid State Battery: https://www.greentechmedia.com/articles/read/us-storage-companies-quietly-grow-bets-on-solid-state-batteries

| Activity Alternative | Advantage | Disadvantage |
|---|---|---|
| | life as a result of reduced self-discharge.<br>• Simplified mechanics as well as thermal and safety management. | |

No hazardous substances are expected to occur or be stored on site for the Paulputs North WEF, and no additional listing notice activities are triggered by the placement and operation of the BESS.

Plate 3-4 provide a visual representation of a typical set up of an on-site substation and BESS. Paulputs North WEF will have similar project components and will be designed in a similar manner.

***Plate 3-4: A stock image of a similar development with an on-site substation and BESS. Source [https://reneweconomy.com.au/why-grid-based-battery-storage-is-already-a-no-brainer-in-australia-85967/]***

## 4 CHANGES TO THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

Although an EMPr was compiled as part of the authorised Paulputs WEF EIA (Arcus, August 2019), the EMPr was not authorised in the Environmental Authorisation. The EMPr for the Paulputs North WEF has been adapted to include only aspects relevant to the Paulputs North WEF, Substation and BESS.

An EMPr compiled by Arcus has been included as Appendix B.

## 5 LEGISLATIVE REQUIREMENTS

Plate 5-1 below provides a brief summary of the methodology that is applied in conducting the amendment process.

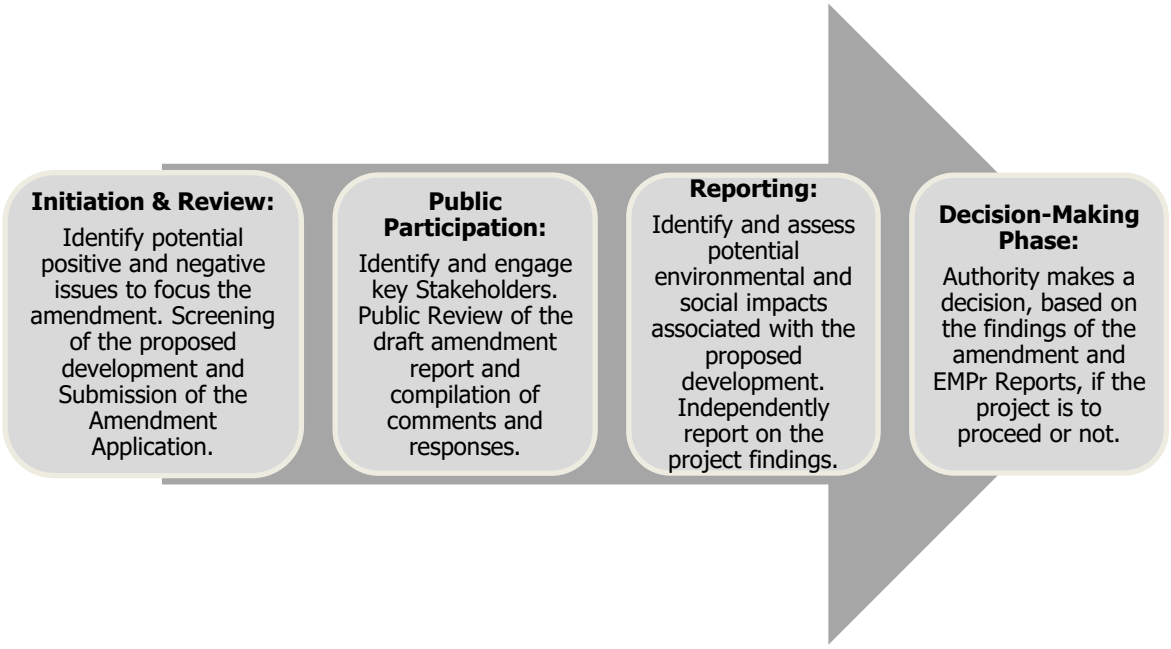


***Plate 5-1: Summarised Methodology applied to conducting an amendment process***

This EA Amendment Report has been compiled in compliance with the National Environmental Management, 1998 (Act No. 107 of 1998) (NEMA) EIA Regulations 2014, as amended. Paulputs Wind Energy Facility (Pty) Ltd are applying for an amendment to the EA issued by the DFFE (DFFE Reference 14/12/16/3/3/2/1120) in terms of Regulation 31 and 32 of the EIA Regulations. Regulation 31 of the EIA Regulations 2014 as amended states that:

*'An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorisation where such change will result in an increased level or change in the nature of impact where such level or change in nature of impact was not-*

*(a) assessed and included in the initial application for environmental authorisation; or*

*(b) taken into consideration in the initial environmental authorisation;*

*and the change does not, on its own, constitute a listed or specified activity.'*

In compliance with Regulation 32 of the NEMA EIA Regulations 2014, as amended, the specialists assessed the proposed changes to the authorised project description and highlighted the advantages and disadvantages of the proposed amendments, and provided further recommendations or mitigation measures if necessary.

***Table 5-1: Legislative Requirements of the Amendment Report***

| **CONTENTS OF THE AMENDMENT REPORT** | |
|---|---|
| 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 -** | **Chapter** |
| (a) A report, reflecting – | |
| An assessment of all impacts related to the proposed change; | Section 9 and 11 |
| Advantages and disadvantages associated with the proposed change; | Section 11 |
| Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and | Section 9 and 11 |

| CONTENTS OF THE AMENDMENT REPORT | |
|---|---|
| Any changes to the EMP. | Section 4 |
| Which report – | |
| aa. Had been subjected to a Public Participation Process (PPP), 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, and | Section 6 |
| bb. Reflects the incorporation of comments received, including any comments of the competent authority; or | Appendix C |
| ~~(b) A notification in writing that the report will be submitted within 140 days of receipt of the application by the competent authority, as significant changes have been made or significant new information has been added to the report, which changes or information was not contained in the report consulted on during the initial PPP contemplated in sub-regulation (1) (a) and that the revised report will be subjected to another PPP of at least 30 days.~~ | Not applicable |
| ~~32 (2) In the event where sub-regulation (1) (b) applies, the report, which reflects the incorporation of comments received, including any comments of the competent authority, must be submitted to the competent authority within 140 days of receipt of the application by the competent authority.~~ | Not applicable |

In addition to the above, this report has taken cognisance of the following legislation.

***Table 5-2: Additional Legislative Requirements of the Amendment Report***

| Applicable National Legislation and Guidelines used to compile the report |
|---|
| *The Constitution of South Africa, 1996 (Act 108 of 1996).* |
| *National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)* |
| *National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA)* |
| *National Water Act, 1998 (Act No. 36 of 1998) (NWA)* |
| *National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004) (NEM:BA)* |
| *National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003 as amended) (NEM:PAA)* |
| *Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)* |
| *The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)* |
| *National Road Traffic Act, 1996 (Act No. 93 of 1996) (NRTA)* |
| *National Forests Act, 1998 (Act No. 84 of 1998) (NFA)) and National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998).* |
| *Hazardous Substances Act, 1973 (Act No. 15 of 1973)*<br>The Regulations for Hazardous Chemical Substances apply to an employer or a self-employed person who carries out work at a workplace which may expose any person to the intake of hazardous chemical substances at that workplace. Regulations 14 and 15 provide for the labelling, packaging, transportation and storage and the disposal of hazardous chemical substances respectively. These regulations set out specific requirements which form part of an employer's duty to provide and maintain, as far as reasonably practicable, a working environment that is safe and without risk to the health of his or her employees.<br>No hazardous substances are expected to occur or be stored on site for this proposed development.<br>Although a battery is not regarded as above, there may indeed be instances where a battery is not fully assembled and the electrolyte (or substances making up such electrolyte) intended for such battery, may potentially be stored on site, in a container (e.g. tanks), prior to filling. In this instance, should the electrolyte be stored in a container, such facility or infrastructure will indeed be regarded as a facility or infrastructure for the storage, or storage and handling of a dangerous good, as these would have as its purpose then, not the storage of energy, but indeed the storage of that substance (if indeed a dangerous good). |

| **Applicable National Legislation and Guidelines used to compile the report** |
|---|
| *Promotion of Access to Information Act, 2000 (Act No. 2 of 2002) (PAIA)* |
| *National Dust Control Regulations, 2013* |
| *The National Development Plan, 2030* |
| *The Public Participation Guidelines in terms of the National Environmental Management Act, 1998 Environmental Impact Assessment Regulations, 2017* |
| *Integrated Environmental Management Guideline on Need and Desirability, 2017* |
| *South Africa's National Biodiversity Strategy and Action Plan* |
| *National Environmental Management Act; National Appeal Regulations, 2014* |
| **Applicable Provincial Legislation and Guidelines used to compile the report** |
| *The Nature and Environmental Conservation Ordinance No. 19 of 1974; and Northern Cape Nature Conservation Act, 2009 (Act No. 9 of 2009).* |
| *Northern Cape Provincial Spatial Development Framework (PSDF), 2012* |

In addition to the above, the renewable energy industry has substantial support in the South African planning context, which is detailed in the following National and Provincial plans:

- National Development Plan;
- National Integrated Energy Plan (2016);
- Renewable Energy Development Zones (REDZ) as read in GNR 114 and GNR 113 of 16 February 2018;
- National Integrated Resource Plan for Electricity,2019 (2010-2013); and
- National Infrastructure Plan.

# 6 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) has been designed to comply with the regulatory requirements set out in the EIA Regulations of 2014 (as amended). In addition, the public participation for this project has been aligned to the NEMA, as amended, PPP Guidelines (2017) and is not intended to be a substitute for the provisions of the NEMA, the SEMAs or the Regulations, in any way.

Public Participation is an important part of any application and must be done appropriately to prevent the project being at risk from challenge that due process has not been followed.

The aim of PPP for the Amendment Process is outlined below:

- Facilitate I&APs to raise any issues of concern and/or suggestions for enhanced benefits;
- Verify that issues have been recorded and considered in the Amendment process by the project team;
- Host a facilitated public meeting, *if required*;
- Assist in identifying reasonable alternatives;
- Provide relevant local information and knowledge to the environmental assessment;
- Facilitate comment on the findings of the environmental assessments; and
- Obtain information on the outcome, i.e., the competent authority's decision, and how and by when the decision can be appealed.

Arcus encourages stakeholder involvement throughout the project process. Stakeholders can become involved in the project in the following ways:

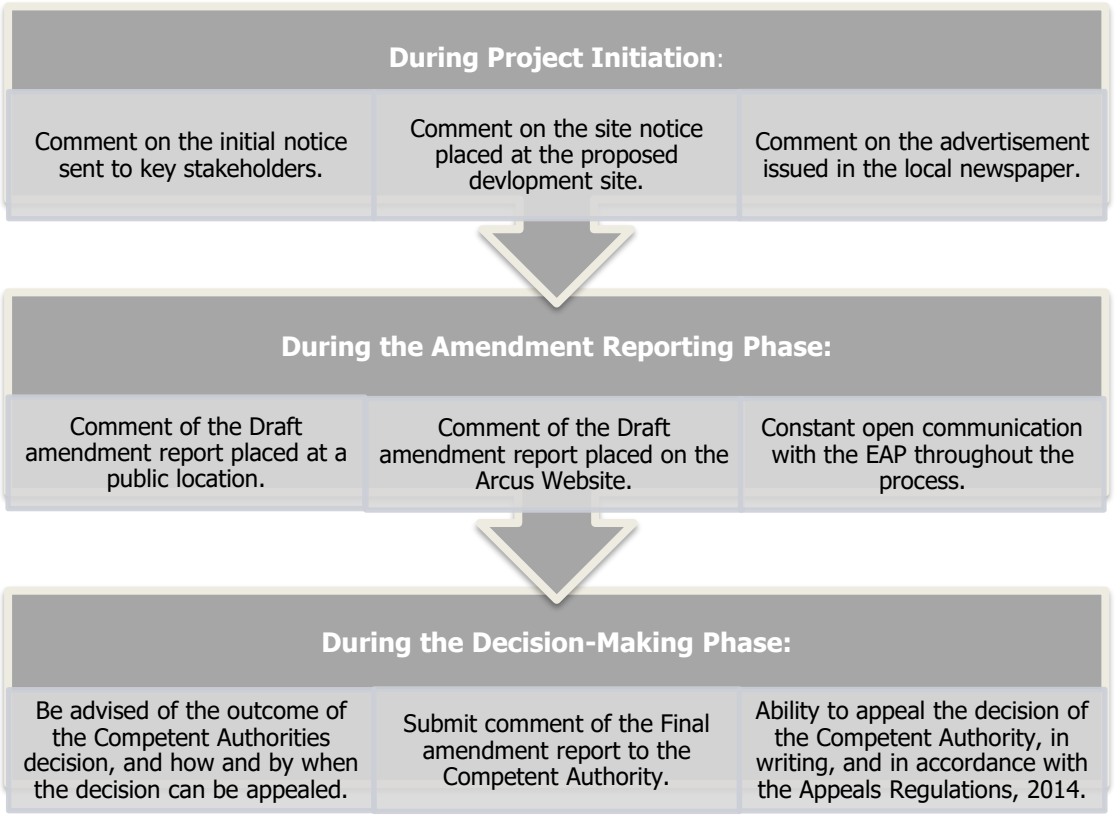


***Plate 6-1: Phases in the project where stakeholders are able to be involved in the proposed amendment process***

A public participation plan (PP Plan) was compiled and submitted to the CA on the 26 August 2020. This plan was submitted in compliance with Section 5.1 and Annexure 2 of the 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.

The plan was not granted written approval for the following reason:

> "*Please note that the Department has no mandate to approve the Public Participation Plan during alert level 2 of COVID-19. The direction that required submission of PPP during level 3 is no longer applicable in level 2. However, you are required to ensure that the EIA Regulations 2014 as amended are strictly followed and ensure that the disaster management directions which are still applicable are considered*".

Despite the above, Arcus have taken the decision to continue to follow the PP Plan that was submitted on 26 August 2020.

This application is for a Part II Amendment of an existing EA and is submitted in terms of Regulation 31. The public participation requirements for a Part II Amendment are contained in Regulation 32(1)(aa), which requires that the amendment 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.

In terms of the above, and in accordance with the submitted Public Participation Plan, the following actions will be/have been undertaken for this amendment report.

## 6.1 Identification of Key Stakeholders

The I&AP database of the authorised Paulputs WEF EIA (Arcus, 2019) process was used as a baseline for this amendment application.

The Department of Forestry, Fisheries and Environment (DFFE) will act as the CA on the proposed amendment. A stakeholder database has been compiled and has been updated throughout the environmental regulatory process (Appendix C).

Registration of I&APs has continued throughout the process, and the I&AP database has been updated accordingly based on comments received and has been included in the final amendment report.

All comments are included in the Comments and Responses Table (Appendix 6 of the PP Report), and responded to and addressed by the project team, i.e., EAP, Applicant and Specialists as applicable. The Comments and Responses Report is provided in the Final Amendment Report (Appendix C).

## 6.2 Public Participation Materials

Considering the legislative and good practice requirements, the following have been developed and distributed to stakeholders. The various PPP information materials which were used as part of the Amendment process are included in Appendix C.

- Distribution of the Initial Notification: Letters announcing the Amendment process and inviting I&APs to register on the project database were sent on 20 January 2021.
- Background Information Document (BID): The BID was distributed on 22 January 2021.
- Newspaper Advertisement: Advertisements were placed in the Gemsbok and Die Burger newspapers on 13 November 2020.
- Site Notice: Site notices and posters were erected around the site as well as in the town of Pofadder and Kakamas in February 2020.
- Notification Letter of Draft Report Availability: Notification letters announcing the availability of the amendment report were sent to the I&AP Database on the 02 August 2021.

**Invitation to Comment:** Members of the public, local communities, and stakeholders are invited to comment on the Amendment Report which was made available for public review and comment from **Monday, 02 August 2021 to Wednesday, 01 September 2021 (both days inclusive)** at the following locations.

| Location | Physical Address | Contact person |
|---|---|---|
| Hard Copy Location: | | |
| Pofadder Library | 108 Water Street, Pofadder | J. Kamies – 054 933 0221 |
| Electronic Copy Location | | |
| Arcus Website | https://arcusconsulting.co.za/projects/ | Ashleigh von der Heyden<br>021 412 1529 |
| Comment Submission | | |
| **Comments were submitted to:**<br>Arcus Consultancy Services South Africa (Pty) Ltd<br>240 Main Road, 1st Floor Great Westerford, Rondebosch, 7700<br>T +27 (0) 21 412 1529 l E paulputs@arcusconsulting.co.za | | |

### *6.2.1 Comment and Responses*

Comments received throughout the application process has been captured in a Comments and Reponses Report (CRR) to form part of the PP Appendix C (refer to Appendix C6).

Comments received before finalisation of this final amendment report have been included in the Comments and Response trail, and responded to and addressed by the project team, i.e., EAP, Applicant and Specialists as applicable.

## 7 MOTIVATION FOR UNDERTAKING THE PROPOSED AMENDMENTS

The authorised turbine model with specifications of 140 m hub height and 180 m rotor diameter is no longer the preferred wind turbine model. The applicant is therefore applying for the turbine specifications to be amended and change the hub height to up to 180 m and the rotor diameter to up to 220 m to facilitate the most efficient turbine model and to further future proof the project amidst rapid technology developments.

Included in this amendment is the reduction of the authorised turbine numbers from 75 to 40 turbines for this application.

From the authorised application, Paulputs Wind Energy Facility North (RF) (Pty) Ltd intends to bid and develop the Paulputs North WEF under the Department of Energy's REIPPPP. For Paulputs North to meet the bidding requirements, the applicant proposed to split the authorised Paulputs WEF along the N14 into two smaller wind farms (namely Paulputs North WEF and Paulputs South WEF).

The authorised layout has been updated due to the project split (Figure 2 and 3).

The findings and assessment of the authorised Paulputs WEF (Arcus, August 2019) indicated that renewable energy is strongly supported at a national, provincial and local level. Therefore, **the need and desirability of the authorised Paulputs WEF (Arcus, August 2019) remain valid for this amendment application**.

The need for the proposed amendment is supported in terms of meeting the country's climate change goals, and in terms of reducing the country's dependence on fossil fuels as the main source of meeting the country's electricity requirements. National, provincial and local policies and planning documents support the development of renewable energy facilities, and the associated socio-economic boost at the local level in an area that is in need of it.

The establishment of the proposed Paulputs North WEF will create direct jobs largely during the construction period. Indirect jobs in accommodation, catering and other services that would support a wind farm as well as training, business and skill development opportunities will be realised. REIPPPP local economic development requirements are expected to enhance these positive benefits. Several other renewable energy facilities located nearby will result in further enhancement of the positive socio-economic benefits.

The proposed amendment site is currently used for low intensity grazing and has little potential for other types of land use. Grazing could continue on the site during the construction and operation of the development. Cumulatively the proportion of land potentially occupied by renewable energy facilities within a 35 km radius of the site is approximately 1 % (Figure 4). In an area of low agricultural or other land use potential, and considering the need to meet South Africa's renewable energy generation targets, the proposed amendment is desirable at this time and place.

A requirement of the REIPPPP is that in the development of any WEF, the local economy must benefit through employment opportunities, skills development, and the development or enhancement of community infrastructure. The cumulative effect of the proposed

amendment and other developments in the area has the potential to result in highly significant positive socio-economic opportunities for the region.

The development of the BESS as part of the Paulputs North WEF is desirable for a several reasons. These are:

- The BESS will diminish the invariability of energy supply into grid – thus making power supply into the national Eskom grid more reliable.
- The REIPPPP has requirements for '*key principles for the design*' of the Independent Power Producers (IPP) Request for Qualification and Proposal (RFP). If Paulputs North cannot construct an independent on-site substation with a BESS (i.e., the No-Go alternative is preferred and the project is not approved), the Paulputs North WEF project may be limited in its capacity to be a competitive bidder within the REIPPP or any programmes going forward.
- Lastly, should the no-go alternative be implemented (the project is not approved), Paulputs North WEF will not have a development to bid in the next round of the REIPPP.

# 8 RECEIVING ENVIRONMENT

As the proposed amendment falls within the western portion (of the N14 Highway) previously assessed as part of the authorised footprint of the Paulputs WEF EIA 2019, the site description and attributes associated with this amendment remain unchanged from what was presented in the original environmental assessment (Arcus, August 2019).

# 9 SPECIALIST ASSESSMENT OF THE PROPOSED AMENDMENT

The EIA conducted by Arcus in 2019 for the authorised Paulputs WEF assessed the potential impacts of the proposed amendment by using specialist input. The same specialists were commissioned during this EA Amendment process.

The Paulputs WEF Final EIA Report (Arcus, August 2019) concluded that there are no negative high residual impacts, including potential cumulative impacts associated with the proposed amendment.

As agreed with the competent authority during the pre-application meeting, this amendment assessment is supplemented with statements from the specialists outlined in Table 1-1. The findings of each of these specialists relating to the potential impacts of the proposed amendments are summarised in the following sections.

## 9.1 Environmental Screening Tool

In terms of GN R960 (promulgated on 5 July 2019), and Regulation 16 (1)(b)(v) of the EIA Regulations, 2014 (as amended), the submission of a Screening Report generated from the national web based environmental screening tool is compulsory for the submission of BA, Part II and EIA applications in terms of Regulation 19 and 21 of EIA Regulations, 2014 (as amended).

The screening tool and assessment was finalised on 23 July 2021 (Volume II). The report included 7 Solar Development Applications have been authorised within a 30 km radius of the proposed development Environmental Management Frameworks (EMF). The majority of these are Concentrated Solar Power (CSP) projects. A portion of the project falls within the Olifants EMF in the ZF Mgcawu District Municipality. In terms of development incentives, restrictions, exclusions or prohibitions, the tool concluded that the site falls within the Strategic Transmission Corridor – specifically the Northern Corridor, this is not applicable to this application for the Paulputs North WEF as this relates to electrical grid infrastructure.

Based on the identified footprint sensitivities of the Paulputs North WEF, the requirements for submission of the screening tool report is applicable as it triggers NEMA EIA Regulations, 2014 (as amended). Table 9-1 provides a summary of the specialist assessments identified by the tool, and the response to each assessment in terms of the proposed development.

***Table 9-1: Specialist assessments identified in terms of the national web based screening tool for the proposed development***

| Identified Specialist Assessment | Identified Screening Tool Sensitivity | | Site Verification Statement | Specialist Opinion (Agree with Screening tool or Disagree with Screening tool) |
|---|---|---|---|---|
| | WEF | Substation | | |
| **Agricultural Impact Assessment** | **Medium Sensitivity** | **Medium Sensitivity** | The significance of all agricultural impacts is kept low by two important factors. The first is that the actual footprint of disturbance of the wind farm constitutes only a very small proportion of the available grazing land. The second is the fact that the proposed site is on land of very limited agricultural potential that is only viable for grazing.<br>The motivation and evidence for confirming the sensitivity is that the low land capability of the area is predominantly a function of the arid climate. The aridity of the climate is entirely beyond dispute, and there is no particular evidence needed to show this. The differences between medium and low sensitivity on this site are largely insignificant and are more a result of the way the land capability data is generated per pixel, than any practical, on the ground differences in agricultural potential.<br>The BESS facility should be appropriately designed to ensure that no hazardous or harmful substances can leak into the environment. Such design may include specific safety design features built into the battery modules and containers themselves, or where hazardous liquids are present, suitable, large enough bunds to contain any leaks should they occur. | Disagree |
| **Archaeological and Cultural Heritage Impact Assessment** | **High Sensitivity** | **Low Sensitivity** | The majority of the site is of low sensitivity with only small pockets (where archaeological resources were found) considered to be of medium sensitivity. Since none of the sites were of high cultural significance, these can all be considered as medium sensitivity areas. | Disagree |
| **Palaeontology Impact Assessment** | **Medium Sensitivity** | **Medium Sensitivity** | The screening tool report contains no palaeontological map which indicates 100% low sensitivity. This is in line with the specialist study conducted during the impact assessment phase. | Disagree |

| Identified Specialist Assessment | Identified Screening Tool Sensitivity | | Site Verification Statement | Specialist Opinion (Agree with Screening tool or Disagree with Screening tool) |
|---|---|---|---|---|
| | WEF | Substation | | |
| **Flicker and Landscape (Visual) Assessment** | **Very High Sensitivity** | **N/A** | An overall impact rating was also conducted as part of the scoping phase in order to allow the visual impact to be assessed alongside other environmental parameters. The assessment revealed that impacts associated with the proposed WEF, and associated on-site infrastructure will be of moderate significance during construction. This could however be reduced to low with the implementation of mitigation measures. During operation, visual impacts from the WEF would be of moderate significance with relatively few mitigation measures available to reduce the visual impact. Visual impacts associated with the WEF on-site infrastructure during operation would be of low significance.<br>This original Visual Impact Assessment (VIA) was based on a desktop-level assessment supported by field-based observation. The sensitivities identified have been considered in relation to the sensitivities identified in terms of the Landscape and Flicker Themes of the National Environmental Screening Tool and, based on the findings of the site verification exercise, the findings of the sensitivity analysis undertaken in the original VIA are considered to still be valid. | Disagree |
| **Noise Assessment** | **Very High Sensitivity** | **N/A** | Noise due to the construction and operation of the proposed Development has been determined at the closest, and therefore most noise-sensitive developments, in accordance with internationally recognised methodologies.<br>The predicted noise levels have then been assessed against a number of criteria incorporating South African and international guidance. The worst-case level of impact was found to be Low at the closest noise-sensitive development, with no impacts anticipated for more distant noise-sensitive developments.<br>No significant impacts are therefore anticipated due to the proposed Development.<br>The proposed Amendments will not result in a greater level of noise impact that originally assessed for the Paulputs WEF. The amendments are therefore considered to be acceptable without the requirement for further noise studies to be undertaken. | Disagree |

| Identified Specialist Assessment | Identified Screening Tool Sensitivity | | Site Verification Statement | Specialist Opinion (Agree with Screening tool or Disagree with Screening tool) |
|---|---|---|---|---|
| | WEF | Substation | | |
| **Terrestrial Biodiversity Impact Assessment** | **Very High Sensitivity** | **Low Sensitivity** | Terrestrial Biodiversity Theme is Very High, with Critical Biodiversity Area 1 & 2, Ecological Support Area, FEPA quinary catchments and Focus Areas for land-based protected areas expansion (NPAES) indicated as being present by the Screening tool. The site verification thus confirms that the terrestrial biodiversity screening tool correctly identifies Critical Biodiversity Area 1 & 2 as well as Ecological Support Area as being within the project footprint. No Focus Areas for land-based protected areas expansion are directly affected, but several are located in the vicinity.<br>The amended layout of the Paulputs North WEF is located in a similar area to the original footprint and there are no turbines in High or Very High sensitivity areas, which is in-line with the recommendations of the original EIA study. | Agree |
| **Plant Species Assessment** | **Medium Sensitivity** | **Medium Sensitivity** | Plant Species Theme is Medium with two flora species *conservation* concern (*Crotalaria pearsonii* & *sensitive species 144*) indicated as possibly *occurring* in the vicinity of the site.<br>The screening tool correctly identifies a single species (Sensitive species 144) as possibly being present, as it is in the general area. Sensitive Species 144 is a widespread species - Nieuwoudtville eastwards to Olifantsfontein and northwards to the Brandberg in Namibia. It was found to not be present in abundance in the immediate site area. *Crotalaria pearsonii* are unlikely to occur on the project site. Records suggest it occurs in rocky hill areas, which are generally absent on site or will be avoided. | Agree |
| **Animal Species Assessment** | **High Sensitivity** | **Medium Sensitivity** | Animal Species Theme is Medium/High with possibly species including a single bird, *Neotis ludwigii*. The bird species *Neotis ludwigii* is not included in the terrestrial biodiversity assessment, as it is assessed independently in the Avifaunal assessment undertaken by Dr Owen Davies. Avian sensitivity as identified by the screening tool is of low sensitivity. No other faunal sensitivities are indicated. No mammals, reptiles, amphibians, or invertebrate species are listed. | Disagree |

| Identified Specialist Assessment | Identified Screening Tool Sensitivity | | Site Verification Statement | Specialist Opinion (Agree with Screening tool or Disagree with Screening tool) |
|---|---|---|---|---|
| | WEF | Substation | | |
| **Avian Assessment** | **Low Sensitivity** | **N/A** | The assessment concluded that the WEF site itself appears to be well suited for wind energy development from an avifaunal perspective. The site visit did not result in any additional features that would result in increased avifauna sensitivity.<br>The sensitivity map resulting from the specialist assessment will be of greater accuracy, resolution and therefore utility in reducing the risk and impacts to avifauna than the map provided by the national web-based screening tool.<br>The sensitivity of the areas around the Greater Kestrel nests are considered to be high sensitivity. The sensitivity of drainage lines and waterbodies is considered to be elevated to high sensitivity. The remaining areas are confirmed to be low sensitivity. | Agree |
| **Bats Assessment** | **High Sensitivity** | **N/A** | It is unlikely that the amendments to the turbine dimensions proposed at the Paulputs WEF would result in a change in impacts as assessed in the authorised Paulputs WEF FEIR – including cumulative impacts. Impacts may be slightly lower for some species as the turbines would reach higher above the ground based on the maximum dimensions being applied for, and this is an advantage of the proposed amendments. However, for high flying species, the higher tip height may result in a greater impact, which is a disadvantage. In terms of this amendment report, the potential collision impact to bats is currently rated as high before, and low after mitigation with adherence to the sensitivity buffers being the major mitigation measure proposed. | Agree |
| **Aquatic Biodiversity Impact Assessment** | **Very High Sensitivity** | **Low Sensitivity** | The site is drained by several non-perennial watercourses, hence would be considered to be within FEPA quaternary catchments. Wetland and River features are confirmed to be present.<br>In general aquatic features are avoided as far as possible and are limited to road crossings where necessary. The significance of the impact would remain low after mitigation during the construction, operation and decommissioning phases of the Paulputs North WEF project, as the with the exception of road crossings all the delineated systems with a High Sensitivity as is required by the Biodiversity Assessment Protocols – Aquatic Theme will be avoided. | Agree but avoided |

| Identified Specialist Assessment | Identified Screening Tool Sensitivity | | Site Verification Statement | Specialist Opinion (Agree with Screening tool or Disagree with Screening tool) |
|---|---|---|---|---|
| | WEF | Substation | | |
| **Civil Aviation** | **Low Sensitivity** | **Low Sensitivity** | CAA Theme was listed as having a low sensitivity and no specific assessment protocol has been prescribed. In this instance, as no specific assessment protocol has been prescribed, the required level of assessment must be based on the findings of the Initial Site Sensitivity Verification and must comply with Appendix 6 of the Environmental Impact Assessment Regulations promulgated under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (The Act), where a specialist assessment is required.<br>The CAA was notified during the initial notification period, and has been provided with the opportunity to comment on the amendment report. Should permits be required, these will be applied for accordingly in terms of a Civil Aviation Assessment, no assessment is required. | Agree |
| **Defence** | **Low Sensitivity** | **Low Sensitivity** | Defence Theme was listed as having a low sensitivity and no specific assessment protocol has been prescribed. In this instance. As no specific assessment protocol has been prescribed, the required level of assessment must be based on the findings of the Initial Site Sensitivity Verification and must comply with Appendix 6 of the Environmental Impact Assessment Regulations promulgated under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (The Act), where a specialist assessment is required.<br>Defence (through the CAA) was notified during the initial notification period, and has been provided with the opportunity to comment on the amendment report. | Agree |

Further, GN R320, promulgated 20 March, states that *'specific procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the NEMA must be included/considered when applying for Environmental Authorisation.'*

GN R320 prescribes the general requirements for undertaking a site sensitivity verification, describes certain protocols for the assessment and minimum report content requirements of environmental impacts for environmental themes for activities requiring environmental authorisation.

## 9.2 Aquatic Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

It was found that the proposed amendment has little bearing on the aquatic environment as the footprint of the Paulputs North WEF site would not result in any changes to the impacts previous assessed for the authorised Paulputs WEF EIA.

Therefore, the significance of the impact would remain low after mitigation during the construction, operation and decommissioning phases of the project as the with the exception of road crossings all the delineated systems with a High Sensitivity as is required by the Biodiversity Assessment Protocols – Aquatic Theme will be avoided.

## 9.3 Avifaunal Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

The activity and abundance of priority species and red data species were found to be very low to low by the pre-construction monitoring conducted by Arcus between Autumn 2018 to the end of Summer 2019. The diversity of these species recorded was also low. Abundances and diversity of small passerines was found to be low as well.

Verreaux's Eagle were confirmed breeding 1.8 km outside of the Paulputs North WEF site boundary, however, the species was not recorded flying on site. The Paulputs North WEF site does not contain any important Verreaux's Eagle habitat, even though they may traverse the site or forage there occasionally.

### Impacts

The impact assessment identified aquatic features as being high avifaunal sensitivity features and a 200 m buffer is therefore advised. Three types of raptor nests were identified within the vicinity of the Paulputs North WEF site. Suitable buffers have been recommended as read below.

The proposed amendment to the turbines at the Paulputs North WEF site would result in a greater per turbine rotor swept area (RSA) and therefore a potentially greater likelihood that birds would collide with turbine blades. The maximum RSA per turbine in the original authorisation is 25 449 $m^2$ but based on the amendment being applied for, this would increase to up to 38 014 $m^2$. This translates into an increase in RSA of approximately 49 % associated with the proposed amendment.

The initial four seasons of monitoring conducted for the authorised Paulputs WEF EIA recorded a very low number of flights, therefore the likelihood that an increase in RSA would have a significantly higher negative impact on avifauna than the original authorisation is considered to be low.

### Mitigation / Recommendations

The main mitigation measure to protect avifauna at the Paulputs North WEF site is to adhere to the sensitivity map in the final authorised Paulputs WEF EIA report. Three types of raptor nests were identified within the vicinity of the Paulputs North WEF site and buffered according to the sensitivity of the species to collisions and standard best practise. These buffers have been used to inform the project layout of the Paulputs North WEF. These buffers are:

- Verreaux's Eagle (3 km);
- Pale Chanting Goshawk (500 m); and
- Greater Kestrel Nest (500 m).

The buffer distances are dependent on size of the turbine being used and to account for this, an additional 110 m buffer (the maximum blade length being considered) was added to all buffers mentioned above. This will ensure that the blades do not sweep into any of the above allocated buffers.

In addition to the above, birds must be dissuaded from nesting within the substation and BESS facility through the use of bird spikes or other suitable deterrents on a case-by-case basis as it is impossible to predict where such nests may be constructed.

## 9.4 Terrestrial Ecology Amendment Assessment

Mr Jamie Pote has been appointed to compile an Amendment Statement, on behalf of the applicant, regarding the potential implications of the proposed amendments on Terrestrial Biodiversity. Simon Todd of 3Foxes Biodiversity Solutions compiled the original Fauna & Flora Specialist Study for the Paulputs WEF EIA, which was authorised on 11 December 2019 by the Department of Forestry, Fisheries and the Environment (DFFE Ref. 14/12/16/3/3/2/1120). This Amendment Statement assessed the amendment in relation to the impacts as originally undertaken by 3Foxes Biodiversity Solutions.

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

**Assessment Findings**

With reference to Plate 9-1 below, the following can be deduced regarding the split of the Paulputs WEF into Paulputs North components as well as the revised layout (red) compared to the original layout (yellow):

1. The minor road and turbine footprint alignment changes will not result in a significant change to the overall impact to terrestrial biodiversity and can be considered to be a slight improvement as it will slightly reduce the width of crossings over drainage line features.
2. The layout changes will not encroach on any areas having an elevated sensitivity, as identified, and mapped by Todd (August 2019).
3. The inclusion of a BESS in the amended layout will have no additional terrestrial biodiversity impact, as it is sited on a temporary laydown area that was included in the original layout. The permanent change will also not be significant in terms of overall impact significance.
4. In terms of the overall impact, there are no changes in the impacts associated with the single Paulputs WEF and the impacts associated with the combined split North and South WEFs.

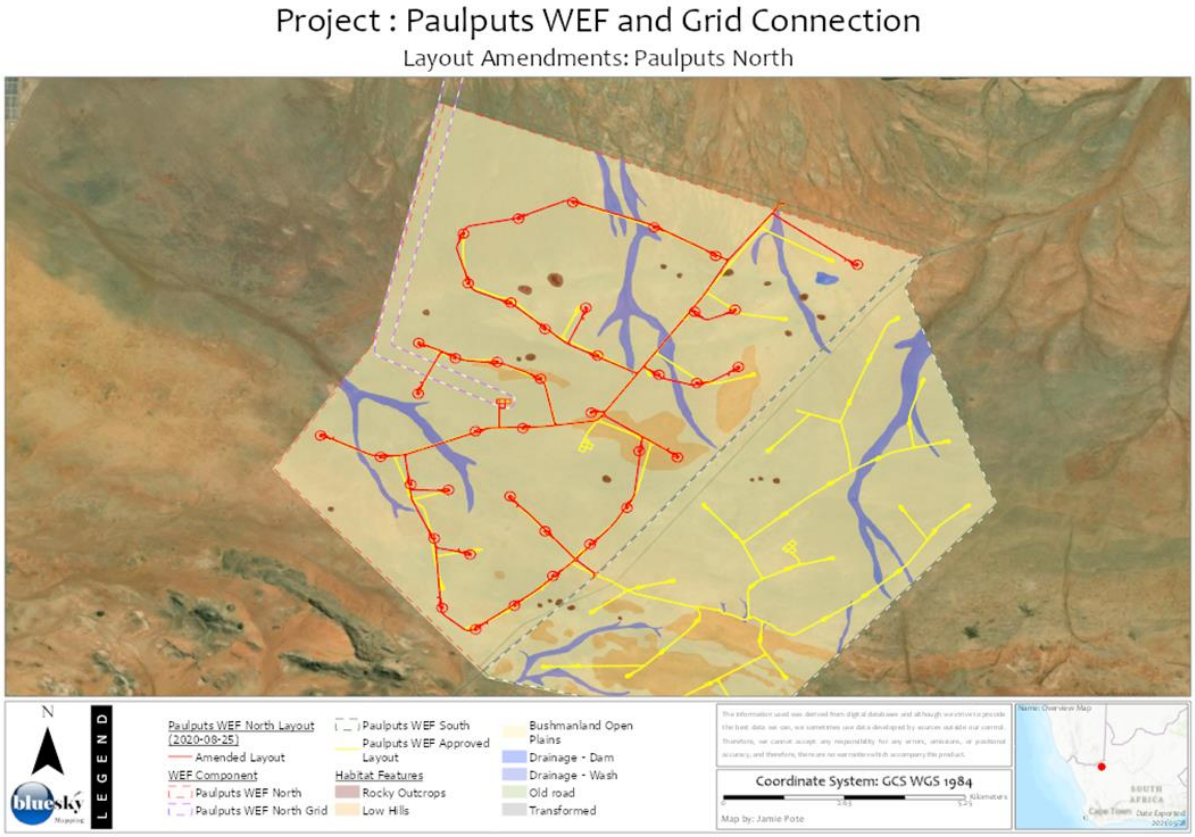


***Plate 9-1: Habitat Mapping (as per Todd, 2019) with amended layout (Paulputs North WEF).***

The changes to the specifications of the wind turbines would not be significant in terms of terrestrial ecology as this would not increase the overall footprint of the development. The amendment does not result in an overall change in the nature of impacts, nor in the significance of direct, indirect, or cumulative impacts, as assessed in for the authorised facility. No additional impacts as a result of the amendments are anticipated and the amendments are not anticipated to require any additional management actions or mitigation measures, inclusive of changes to the EMPr.

When the original project plan for the combined layout is compared to that of the project being split into two components, it can be concluded that the split, from a terrestrial biodiversity perspective, has no significant change in the terrestrial biodiversity risks from that of the original layout.

**Mitigation / Recommendations**

The layout of the Paulputs North WEF is located in a similar area to the original turbine footprint and there are no turbines in High or Very High sensitivity areas, which is in-line with the recommendations of the original EIA study. As such, there are no additional changes to the mitigation and avoidance measures that were recommended in the EIA study. In addition, the cumulative impacts associated with the amendment are considered to be similar to those as assessed in the EIA and thus there would no changes to the overall cumulative impacts associated with the split of the wind farm from a single to two facilities. All of the mitigation and avoidance measures as recommended in the EIA are still valid for this report as well as layouts.

It is recommended that in terms of terrestrial biodiversity that the amendment be approved, subject to implementation of all recommendations in the original assessment

inclusive of the Environmental Management Programme (EMPr) and the conditions of the Environmental Authorisation (EA).

## 9.5 Bat Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

### Assessment Findings

Bat activity on the Paulputs North WEF site was dominated by the Egyptian free-tailed bat. Their activity was found to be lower at height and greater near trees, shrubs and aquatic habitats as these provide a more suitable foraging habitat in an otherwise arid landscape.

Based on the pre-construction monitoring data undertaken as part of the authorised Paulputs WEF EIA, two thirds of the sample nights had low to moderate activity. During summer and spring the activity was higher accounting for ca. 40 % and 30 % of total activity respectively. There was no available bat activity data in the area for heights of 12 m and 100 m, or over 100 m.

Despite the lower activity at height, increasing evidence suggests that bats actively forage around wind turbines (Cryan et al. 2014; Foo et al. 2017). Therefore, the installation of turbines in the landscape may alter bat activity patterns by either increasing activity at height and/or increasing the diversity of species making use of higher airspaces.

### Impacts

Of the impacts identified in the authorised Paulputs WEF EIA, only mortality of species due to collision with turbine blades or due to barotrauma was identified. This amendment study concurs with the authorised EIA findings, impacts and cumulative impacts, as there remain relevant for the amendment application.

In terms of this amendment report, the potential collision impact to bats is currently rated as high before, and low after mitigation with adherence to the sensitivity buffers being the major mitigation measure proposed.

### Mitigation / Management Measures

The first mitigation measure would be to adhere to the sensitivity map included in the authorised Paulputs WEF EIA report. This report contained buffers for several important bat features.

The DFFE screening tool suggests a high sensitivity buffer of 500 m around wetlands and rivers. In line with the South African Bat Assessment Association, it is the specialist's opinion to buffer hydrological features such as wetlands, rivers and farm dams by 200 m while drainage lines can be buffered by 100 m. Potential roosts such as rocky crevices, trees and buildings have been buffered by 200 m. No parts of the turbines, including the blade tips, should enter these buffers. These buffer distances are also dependant on the size of the turbine being used. For example, if the turbine blades sweep close to ground level, the turbine base would need to be moved further from the buffer edge. To account for this, a 110 m buffer (the maximum blade length being considered) was added to all buffers to ensued that the blades do not sweep into any bat buffers.

Secondly, bat activity is higher closer to ground level, thus it would be preferential to maximize the distance between the ground and blade tips by using turbines with the shortest possible blades and the highest possible hub height. Additionally, it is beneficial to use shorter blades which do not intrude into higher airspaces, thereby reducing the potential impact to high flying species such as free-tailed bats which dominated activity on site.

Lastly, should residual impacts exceed bat fatality thresholds, the use of curtailment (which is provided for in the EIA) must be considered. Curtailment would initially be limited to the months of February, August and October (Table 9-2).

Even though the cumulative impacts will be higher, the impact rating for cumulative impacts will remain medium before and low after mitigation. Curtailment is the remaining mitigation measure to reduce residual impacts during operation and must be continuously refined and adapted based on incoming bat fatality data.

***Table 1-1: Curtailment Parameters for the Paulputs North WEF***

| | **February** | **August** | **October** |
|---|---|---|---|
| **Time Period** | Between 4 and 5 hours after sunset | 1 hour after sunset | Between 4 and 5 hours after sunset |
| **Temperature (°C)** | 11 – 27 | 10 – 27 | 16 – 27 |
| **Wind Speed ($ms^{-1}$)** | 4 – 11 | 4 – 13 | 5 – 13 |
| **Relative Humidity (%)** | 20 – 40 | 5 – 25 | 10 – 30 |
| For example, in February curtailment should be applied between four and five hours after sunset when the temperature is between 11 °C and 27 °C, or wind speed is between 4 $ms^{-1}$ and 11 $ms^{-1}$, or relative humidity is between 20 % and 40 % if fatality threshold were exceeded. | | | |

## 9.6 Soil and Agricultural Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

Plate 9-2 shows the uniform landscape of the proposed development site. There are no agricultural impacts related to this proposed amendment. In addition, there are no agricultural advantages or disadvantages related to it. The proposed amendment does not require any changes or additions to the mitigation measures for agricultural impacts that were recommended for the authorised Paulputs WEF, therefore no required changes to the EMPr will be required.

The agricultural impact of the amended project will therefore be identical to the impacts recommended in the authorised Paulputs WEF EIA.

***Plate 9-2: Paulputs North WEF Site***

## 9.7 Heritage, Archaeology and Palaeontology Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

**Assessment Findings**

The turbine layout is only slightly changed from that which was authorised as part of the authorised Paulputs WEF.

**Impacts**

Several heritage sites are present within the Paulputs North WEF. These sites have all been considered and avoided in the project design and, because it is still possible that other sites might occur within the road footprint, no change in the impact assessment ratings is needed from what was originally assessed in the authorised Paulputs WEF EIA. The ratings to all other aspects of heritage similarly remain unchanged.

Paulputs North are required to conduct a pre-construction archaeological survey of the road layout to determine whether any other archaeological sites might be present in open areas not covered during the original survey.

**Mitigation / Recommendations**

The recommendations to be carried forward for the proposed amendment are as follows:

- The final authorised layout for the WEF, all internal roads (including the above rerouted section), internal power lines, substation and any other areas to be disturbed must be surveyed by an archaeologist prior to construction in order to identify any remaining potential impacts that may need mitigation;
- Identified sensitive sites must be treated as no-go areas throughout the lifetime of the project;
- If any turbines are removed as a result of the use of larger turbines at a later stage then priority should be given to removing turbines close to the N14; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

## 9.8 Visual Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

**Assessment Finding**

The overall impact rating conducted for the authorised Paulputs WEF revealed that impacts associated with the authorised WEF and associated infrastructure will be of moderate significance during construction. It was found that this could however be reduced to low with the implementation of mitigation measures. During operation, visual impacts from the WEF would be of moderate significance with relatively few mitigation measures available to reduce the visual impact.

**Impacts**

The proposed new turbine specifications would allow for a maximum height (at blade tip) of 290 m, some 60 m higher than the height currently authorised. The significance of this change from a visual perspective is assessed below.

- The increased height as proposed will increase the visibility of the turbines and extend the area from which the turbines will be visible (viewshed). This will be exacerbated by the lack of any natural screening elements in the broader study area resulting from relatively flat terrain and the prevalence of low shrubland vegetation cover. It is however important to note that visual impacts are only experienced when there are receptors present to experience this impact. The original VIA for this development found

that the broader study area is not typically valued for its tourism significance and there is limited human habitation resulting in relatively few potentially sensitive receptors in the area. In light of this and given the relatively remote location of the proposed Paulputs North WEF, the extended viewshed will not affect any additional receptors within the 10 km assessment zone.

- Visual impacts resulting from the larger turbines would be greatest within a 1 to 2 km radius, from where the increased height of the structure would be most noticeable. Only two (2) potentially sensitive receptors are less than 2 km from a possible turbine placement, these being the farmsteads located on Portion 5 of the Farm Scuit Klip No 92 and Portion 4 of the Farm Lucas Vlei No 93 respectively. The original VIA for Paulputs WEF determined that these receptors would experience high levels of visual impact as a result of the WEF development, largely as a result of their proximity to the nearest proposed turbine placement. Hence the larger turbines as proposed would not increase the impacts experienced by these receptors. In addition, no concerns were raised by the owners of these properties during the Public Participation Process conducted for the Paulputs WEF EIA and it is therefore possible that the proposed development is not perceived in a negative light.
- The remaining potentially sensitive receptors are all more than 2 kms from the nearest turbine placement and, while the increased turbine height would make the turbines more visible from these receptors, the overall impact is expected to remain largely unchanged from this distance. It should be noted that although the larger turbines may be visible from some farmhouses outside the 10 km assessment zone, at this distance it is likely that the turbines will merge to some degree with the surrounding landscape and as such impacts resulting from the increased turbine height will be minimal.

It is noted that the presence of the KaXu, !Xina and Konkoonies Solar Energy Facilities, the Paulputs substation and the existing high voltage power lines in close proximity to the Paulputs North WEF application site has resulted in a significant level of transformation of the natural environment in this area which will reduce the significance of visual impacts resulting from the proposed amendments.

**Mitigation / Recommendations**

Several turbine placements are within 1 km of the N14 National Route and although the larger turbines will be more visible motorists travelling along this route, this section of the N14 does not form part of a designated tourism route and as such, visual impacts will remain as moderate. In addition, visual impacts will be transient and motorists are unlikely to be adversely affected by the presence of turbines as proposed and the 500 m buffer recommended in the scoping phase VIA for the Paulputs WEF will be sufficient to mitigate the impacts of shadow flicker.

## 9.9 Noise Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

The authorised 75 turbine Paulputs WEF was assessed as a whole in the original assessment, and the principle of splitting the WEF into two individual developments (40-turbine Paulputs WEF North, and 35-turbine Paulputs WEF South) has no effect on wind turbine noise levels.

The proposed alterations to some turbine locations are very minor (approximately 20 metres), and will have no effect on the predicted noise levels assessed in the original assessment. The proposed increase in rotor diameter and hub height of the turbines does not in itself result in increased noise levels; the turbine type selected for consideration in the authorised Paulputs WEF EIA (Acciona AW132-3300) is a worst-case in terms of noise, with a wide range of turbines available with equal or lower noise emission levels. Providing

the actual turbine selected for construction has maximum noise emission levels equal to or lower than those originally assessed, there will be no additional impact.

Noise from the inclusion of a BESS will be limited to a small number of air-conditioning units to regulate the temperature of the batteries. Given the substantial separation distance from the temporary laydown area to residential dwellings (approximately 4.7 km from the closest residential dwelling), noise from the inclusion of a BESS will have no impact and therefore not be significant.

## 9.10 Social Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

**Assessment Findings**

The identification and assessment of the key social impacts related the proposed amendment were assessed in detail and included in Section 4 of the full SIA report that formed part of the authorised Paulputs WEF EIA that already received EA by the DFFE.

Therefore, the social impacts that were identified and assessed in the full SIA report (that formed part of the full EIA report that was authorised), as well as the mitigation and enhancement measures included in the full SIA report and any social aspects included in the authorised EMPr, are still relevant and valid for this proposed amendment.

**Impacts**

The findings of the full SIA report demonstrated that the proposed establishment of the WEF is supported as it creates a positive social benefit for society.

**Mitigation / Recommendations**

Paulputs North are required to implement the suggested enhancement and mitigation measures contained in Section 4 of the full SIA report, as well as inputs from other specialist studies for the authorised Paulputs WEF EIA.

## 9.11 Traffic Amendment Assessment

A copy of both the Paulputs WEF EIA specialist report and Impact statement are contained in Volume II.

It is noted that the total number of wind turbines, from a traffic perspective, remains unchanged as 75 turbines will still be transported to site regardless of the Paulputs WEF being split. Thus, the findings, recommendations and management measures as contained in the authorised Traffic Impact Assessment (TIA) (11 July 2019) are still valid.

It is also noted that only slight changes have been made to the internal access roads. As such, the above changes do not impact on the Traffic Specialist Report findings and recommendations as stated in the authorised Paulputs WEF EIA.

A transport management plan must be compiled and must consider the logistics of transporting abnormal loads to site. This plan must be compiled after preferred bidder is awarded.

## 9.12 Cumulative Impact

The cumulative impact of the facility as a whole was considered and assessed in detail in the authorised Paulputs WEF EIA. The authorised EIA concluded that there are no negative high residual impacts, including potential cumulative impacts associated with the proposed development of the WEF, grid connection option and substation options.

The creation of local employment and business opportunities, skills development and training which can be associated with cumulative impacts, was rated as high positive. With mitigation all potential negative cumulative impacts are reduced to medium or low significance. Potential cumulative negative impacts that remain medium significance after mitigation were identified by the bird, heritage, social and visual specialists while a potential cumulative positive impact of high significance after enhancement was identified by the social specialist. The negative impacts associated with the proposed Paulputs WEF are considered acceptable by the specialists.

## 10 HIGH-LEVEL BESS RISK ASSESSMENT

The risks associated with battery technologies are typically well researched and documented. The main concerns relating to a BESS are fire hazards and the potential for a condition known as '*thermal runaway*'. Thermal runaway occurs in situations where an increase in temperature changes the conditions in a way that causes a further increase in temperature, often leading to a destructive result. As far as general environmental risks, the main concerns are surrounding the disposal of the batteries at the end of their life.

The Risk Assessment mitigation measures provided below can be incorporated into a Battery Safety Management Plan, which is to be kept in both electronic and hard copy format on the project site. This Risk Assessment has been prepared to ensure that safety risks related to the BESS are understood, accounted for and mitigated as far as practicable.

The following international guidance has been considered during the preparation of this Risk Assessment:

- Allianz Risk Consulting (ARC), Tech Talk Volume 26 (2019). Battery Energy Storage Systems (BESS) using Li-ion batteries[13];
- National Fire Protection Association (NFPA) 855, Standard for the Installation of Stationary Energy Storage Systems, (2020 edition currently under development and not yet available)[14];
- UL 9540, Standard for Energy Storage Systems and Equipment[15]; and
- Consolidated Edison and New York State Energy Research and Development Authority - Considerations for ESS Fire Safety (February 2017)[16].
- The Energy Operators Forum "Good Practice Guide" (December 2014)[17];
- Institute of Engineering and Technology - Code of Practice for Electrical Energy Storage Systems (August 2017)[18]; and
- The Energy Institute: Battery Storage Guidance Note 1 - Battery Storage Planning (August 2019)[19].

At the time of writing, the above standards and legislation is not specifically applicable to the proposed BESS, but notwithstanding provided valuable guidance for the preparation of this Risk Assessment.

The Risk Assessment Matrix below assesses several potential situations which could result in a possible detrimental environmental hazard. These are:

[13] https://www.aqcs.allianz.com/news-and-insights/risk-advisory/tech-talk-volume-26-bess-english.html
[14] https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=855
[15] https://standardscatalog.ul.com/standards/en/standard_9540_1
[16] https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Energy-Storage/20170118-ConEd-NYSERDA-Battery-Testing-Report.pdf
[17] https://www.eatechnology.com/engineering-projects/electrical-energy-storage/
[18] https://shop.theiet.org/code-of-practice-for-electrical-energy-storage-systems
[19] https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpublishing.energyinst.org%2Ftopics%2Fpower-generation%2Fbattery-storage%2Fbattery-storage-guidance-note-1-battery-storage-planning&data=01%7C01%7C%7Cfbce9f4783304951211308d72af01893%7C6b5953be6b1d4980b26b56ed8b0bf3dc%7C0&sdata=%2FqEjqDC2nzzxcKTWFaKkUEiiTiiOzTamrAsxsMz9Y4M%3D&reserved=0

1. The actual **risks** associated with the delivery, connection, operation, maintenance, disconnection and disposal of the batteries.
2. The **likelihood** of these actual risks occurring.
3. The **significance** of the impacts should these risks take place.
4. Appropriate and practical **mitigation** measures and/or management actions to reduce likelihood of the risk occurring and/or the impact.

***Table 10-1: High-Level BESS Risk Assessment***

| Possible Risk | Resultant Impact Significance | Likelihood of occurrence | Management / Mitigation |
|---|---|---|---|
| **Spillages**<br>**Thermal Runaway**<br>**Poor Maintenance** | - Electrocution<br>- Potential spillage of electrolytes or refrigerant<br>- Vented gasses<br>- Staff and personal injury<br>- Contaminated Runoff<br>- Soil and microbe contamination<br>- Groundwater seepage<br>- Downstream effects on the current terrestrial ecosystem. | **Low** | - Training of all staff and employees on how to handle spillages, fires and electrocutions<br>- Records kept for well managed operations and maintenance.<br>- Bunding of containers<br>- Implementation of spill handling and management in line with the generic EMPr<br>- Demarcate all no-go and sensitive areas<br>- Avoid the placement of batteries near watercourses and sensitive features<br>- MSDS Records to be kept, as well as incidents reporting register.<br>- Source batteries from reputable suppliers<br>- Battery inspection prior to installation.<br>- Maintenance.<br>- Appropriate battery design and venting control<br>- Source from reputable manufacturers.<br>- Safe and appropriate storage in line with the above and the generic EMPr. Safe handling which must include battery inspection prior to installation.<br>- Development and implementation of Thermal Management Plan prior to installation/construction. |
| **Fire Risk** | - On-Site Fire<br>- Fire Spread<br>- Staff and personal injury | **Medium** | - Procuring components and using construction techniques which comply with all relevant legislation;<br>- Including automatic fire detection systems in the development design;<br>- Including automatic fire suppression systems in the development design;<br>- Including redundancy in the design of the BESS to provide multiple layers of protection; |

| | | | |
|---|---|---|---|
| | | | - Designing the BESS and substation yard to contain and restrict the spread of fire through the use of fire-resistant materials, and adequate separation between elements of the BESS; and<br>- Ensuring that Staff appointed to work within the BESS and substation area, as well as First Responders receive adequate emergency response training to a fire.<br>- Work with first responders and relevant Personnel to develop a Tactical Fire Response Plan in case of an incident |
| **Inappropriate Storage** | - On site fires.<br>- Electrical failure<br>- Electrocution<br>- Potential spillage of electrolytes or refrigerant<br>- Vented gasses<br>- Staff and personal injury<br>- Contaminated Runoff<br>- Soil and microbe contamination<br>- Groundwater seepage<br>- Downstream effects on the current terrestrial ecosystem. | **Low** | - Training of all staff and employees on how to handle spillages, fires and electrocutions<br>- Records kept for well managed operations and maintenance.<br>- Bunding of containers<br>- Implementation of spill handling and management in line with the generic EMPr<br>- Demarcate all no-go and sensitive areas<br>- Avoid the placement of batteries near watercourses and sensitive features<br>- MSDS Records to be kept, as well as incidents reporting register.<br>- Source batteries from reputable suppliers<br>- Battery inspection prior to installation. |
| **Limited Employee Training and Experience** | - Time lag for first respondent<br>- Inability to contain spillage<br>- Fire<br>- Electrocution<br>- Damage to exiting/surrounding infrastructure | **Low** | - During the construction phase of Paulputs North WEF, first responders from the nearest major center (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. |
| **Inappropriate disposal at the end of life** | - 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.<br>- 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 | **Medium** | - The recycling of batteries and their potential use as e-waste.<br>- Disposal at a licensed hazardous waste site.<br>- Prior to construction of the Paulputs North WEF, the Applicant is to develop a dedicated Battery Recycling Programme to be adopted on-site.<br>- Records of disposal at a licensed facility must be kept. |

| | | | |
|---|---|---|---|
| | 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. | | |

In terms of minimising fire risk within the BESS and Substation site, the following design and implementation recommendations are proposed and should be considered prior to installation/construction of the BESS. These recommendations should form part of the Tactical Fire response plan where applicable.

***Table 10-2: Proposed Design and Installation Considerations for the BESS***

| **Initial Design Recommendations:** |
|---|
| **1. Fire department**<br>• Invite the fire department to the project site to discuss BESS hazards. An adequate emergency response is the key to avoiding an uncontrolled fire. Keep in mind that some fire fighters will not fully understand the hazards and may assume that lithium-ion batteries are the same as lithium batteries.<br>• Key questions to discuss with the fire department include:<br>– What is the main difference between extinguishing and cooling?<br>– How to handle a damaged battery?<br>– How to manage the flammable and toxic gases?<br>• Plan training exercises with the fire department when the system is commissioned.<br>• Standard Operating Procedures (SOP) & Standard Operating Guidelines (SOG) are of major importance and should be updated and tested on a regular basis. |
| **2. Construction and location**<br>• Install the BESS outdoors, a minimum of 20 m from important buildings or equipment. Maintain a minimum of 3 m separation from lot lines, public ways and other exposures.<br>• Within the module, maintain a minimum of 1 m separation distance between enclosures for all units up to 50 kWh when not listed, or up to 250 kWh when listed.<br>• Install a thermal barrier where the minimum space separation cannot be provided.<br>• If the BESS must be located indoors, install in a 2-hour fire rated cut-off room, which is accessible directly outdoors for manual firefighting.<br>• Restrict the access to competent employees or sub-contractors.<br>• Ensure enclosures are non-combustible. |
| **3. Material, equipment and design**<br>• Paulputs North should consider a 'Testing Method' for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. A possible international standard to consider would be UL 9540A. This standard evaluates thermal runaway, gas composition, flaming, fire spread, re-ignition and the effectiveness of fire protection systems. Data generated can be used to determine the fire and explosion protection requirements for a BESS.<br>• Place capacitor, transformer, and switch gear in separate rooms according to best engineering practices. |
| **4. Ventilation and temperature control** |

| **Initial Design Recommendations:** |
|---|
| • Install adequate ventilation or an air conditioning system to control the temperature. Maintaining temperature control is vital to the battery's longevity and proper operation as they degrade exponentially at elevated temperatures.<br>• Ensure ventilation is provided in accordance with the manufacturer's recommendations.<br>• Install and maintain the ventilation during all stages of a fire. Ventilation is important since batteries will continue to generate flammable gas as long as they are hot. Also, carbon monoxide will be generated until the batteries are completely cooled through to their core. |
| **5. Gas detection and smoke detection**<br>• Install a very early warning fire detection system, such as aspirating smoke detection.<br>• Install carbon monoxide (CO) detection within the container or BESS room. |
| **6. Fire protection and water supply**<br>• Investigate the possibility of installing a sprinkler protection system within the BESS containers. The sprinkler system should be designed to provide (at a minimum) 12.2 l/min/m² over 232 m². Water has been proven to be the best agent to fight a fire involving lithium-Ion batteries. It is important to note that other extinguishing agents, such as aerosols or gaseous extinguishing systems, will extinguish the fire, but they do not provide cooling like water. Insufficient cooling allows a hot and deep-seated core to remain. The heat will rapidly spread back through the battery and reignite remaining active sections.<br>• Implement a procedure for battery submersion in the Tactical Fire Reponses Plan, as well as the WEF Emergency Response Plan to be performed by the fire department. Submerging batteries in water (preferably outdoors) after they burn has proven to be effective at cooling the batteries and neutralizing the thermal threat. They will continue to release gases, mostly carbon monoxide, but also flammable gas such as hydrogen. Therefore, it is not recommended to submerge several batteries in a confined space without adequate ventilation.<br>• Ensure that sufficient water is available for manual firefighting. The ability of the fire department to control a fire involving a BESS depends on the presence of an adequate water supply and their knowledge of the hazards. The following should be considered:<br>– An external fire hydrant should be located within 100 m of the BESS room or containers.<br>– The water supply should be able to provide a minimum of 1,900 l/min (500 gpm) for at least 2 hours. |
| **7. Maintenance**<br>• Follow original equipment manufacturer recommendations for the inspection, testing and maintenance of the BESS. In addition, ensure that the following (at a minimum) is completed:<br>– Measure the internal resistance of the battery cells. Replace the cells when a dramatic drop is detected. This will provide a good gauge of predictable battery life.<br>– Perform infrared scanning at least once per year.<br>– Check for fluid leakage.<br>– Implement electric terminal torqueing procedures to maintain connection integrity. |

# 11 SPECIALIST IMPACT STATEMENT

Section 11.1 to 11.11 provides a summary of the advantages and disadvantages of the proposed amendment in terms of the impacts assessed by specialists and Section 1.12 provides a summary table there-of. Overall, the advantages of the proposed development in terms of this amendment outweighs the disadvantages. The proposed amendment is thus seen as favourable and no additional impacts are expected.

Figure 5 includes a sensitivity map of the proposed amendment development.

## 11.1 Aquatic Amendment Assessment

The impact of the proposed amendment on the aquatic ecological environment, with mitigation, will remain unchanged from the original impact assessment, i.e. it will remain of low significance. Similarly, in the assessment of potential cumulative impacts, no additional impacts or changes to the previously assessed impacts would be required due to the proposed amendment. Further, no changes to the original mitigations or EMPr recommendations are required.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from an Aquatic perspective.

## 11.2 Avifaunal Amendment Assessment

It is unlikely that the proposed amendments to the Paulputs WEF would result in a change in impacts as assessed for the authorised EIA – including cumulative impacts. The key initial mitigation measure that should be implemented at the Paulputs North WEF would be adherence to the revised 110 m buffer (the maximum blade length being considered) which was added to all buffers to ensure that the blades do not sweep into any buffers.

The impacts associated with the construction, operation and decommissioning phases of the proposed amendment can be mitigated to acceptable levels provided the recommended mitigation measures of the original authorisation are implemented.

## 11.3 Terrestrial Ecology Amendment Assessment

The amendment requires the split of the 300 MW Paulputs WEF into the 150 MW Paulputs South WEF and the 150 MW Paulputs North WEFs. As the overall footprint of the split facilities would be similar to the original single facility, the proposed changes would not increase the assessed impacts. Further, the proposed changes to the turbine specifications would not increase the footprint of the Paulputs North WEF development. In addition, the split of the wind farm into two applications, the addition of the battery storage and the changes to the turbine specifications would not increase cumulative impacts. No additional mitigation or avoidance measures, beyond those already recommended in the EIA study are required for the amendment.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from a terrestrial ecology perspective.

## 11.4 Bat Amendment Assessment

It is unlikely that the proposed amendments would result in a change to the significance in impacts as assessed in the FEIR – including cumulative impacts. Impacts may be slightly lower for some species as the turbines would be elevated from ground level, and based on the maximum dimensions being applied for, this is considered an advantage of the proposed amendments. However, for high flying species the higher tip height may result in a greater impact, which is disadvantageous.

Paulputs North must adhere to the recommended buffer distances to ensure impacts are minimised. Hydrological features are to be buffered by 200 m, while drainage lines are to be buffered by 100 m. Potential roosts such as rocky crevices, trees and buildings have been buffered by 200 m. A 110 m blade buffer was added to all buffers to account for any potential negative impacts.

Residual impacts that could occur will need to be evaluated during the operational phase using carcass searches to monitor actual impacts and assess these against published thresholds. If thresholds are exceeded, curtailment will need to be applied according to the parameters in the authorised Paulputs WEF FEIR and in this report (Table 8-1). Any further mitigation measures recommended by the appointed operational specialist must be adhered to by Paulputs North.

### 11.5 Soil and Agricultural Amendment Assessment

There are no additional agricultural impacts related to this proposed amendment. In addition, there are no agricultural advantages or disadvantages related to it and the impacts of the amendment are neutral. The proposed amendment does not require any changes or additions to the mitigation measures for agricultural impacts that were recommended for the authorised Paulputs WEF, therefore no required changes to the EMPr will be required.

### 11.6 Heritage, Archaeology and Palaeontology Amendment Assessment

This amendment assessment found that no sites of very high cultural significance were located during the survey. Despite the permanence of impacts to archaeological sites, the low extent and probability of impacts combined to result in a low significance. With mitigation the intensity would become low and the resulting significance would remain low.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from a Heritage, Archaeological or paleontological perspective.

### 11.7 Visual Amendment Assessment

The overall impact rating conducted for the authorised Paulputs WEF VIA revealed that the WEF is expected to have a moderate negative visual impact rating during both construction and operation, with relatively few mitigation measures available.

In light of the above, the increase in the proposed turbine rotor diameter will not change this impact rating. Furthermore, no additional recommendations or mitigation measures will be required and all of the mitigation measures set out in the VIA remain valid.

Further, given the low level of human habitation and the relative absence of sensitive receptors in the area, the increased turbine height is deemed acceptable from a visual perspective.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from a visual perspective.

### 11.8 Noise Amendment Assessment

Overall, the changes proposed as part of the proposed amendment will not result in any changes to the findings of the authorised Paulputs WEF EIA, and are therefore not significant in terms of the EIA Regulations.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from a noise perspective.

## 11.9 Social Amendment Assessment

The proposed amendment will not result in any additional impacts, cumulative impacts or residual impact, nor will it change the significance of these impacts.

However, this recommendation is still made subject to Paulputs North ensuring compliance with the mitigation measures contained in Section 4 of the full SIA report, as well as inputs from other specialist studies for the authorised Paulputs WEF EIA.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from a social perspective.

## 11.10 Traffic Amendment Assessment

It is noted that the total number of Wind Turbines, from a traffic perspective, remains unchanged as 75 turbines will still be transported to site. It is also noted that only slight changes have been made to the internal access roads. As such, the above changes do not impact on the Traffic Specialist Report findings and recommendations as stated in the authorised Paulputs WEF EIA.

Thus, there are no advantages or disadvantages related to this proposed amendment and the impacts of the amendment are neutral from a traffic perspective.

A transport management plan must be compiled and must consider the logistics of transporting abnormal loads to site. This plan must be compiled after preferred bidder is awarded.

## 11.11 High-Level BESS Risk Assessment

A comprehensive operations and maintenance programme is necessary to ensure that all management and mitigation measures included in the EMPr are adopted and implemented as well as to ensure that all monitoring and protective devices are in good working order.

Regular inspections should be undertaken to ensure the battery systems are not overheating or showing signs of malfunction. Annual thermographic scanning can help ensure the BESS is operating within normal parameters.

This high-level risk assessment must be replaced with a detailed technology specific risk assessment once the final equipment suppliers have been identified during the detailed design and procurement stage.

## 11.12 Advantages and Disadvantages

Specialists were requested to provide an opinion on the advantages and disadvantages of the proposed amendment application (as above). Table 11.1 below provides a comparative assessment of the advantages and disadvantages of the Paulputs North WEF.

***Table 11-1: Advantages and Disadvantages of the Paulputs North WEF***

| Specialist | Advantage | Disadvantage |
|---|---|---|
| **Aquatic** | Neutral | Neutral |
| **Avifauna** | Applicant has amended the layout to account for a 110m blade buffer. | Neutral |
| **Terrestrial Ecology** | Neutral | Neutral |
| **Bats** | Impacts may be slightly lower for some species as the turbines would be elevated from ground level, and based on the maximum dimensions being applied for, this is considered | The amended turbine layout could impact high flying species as the higher tip height may result in a greater impact, which is disadvantageous. |

| | | |
|---|---|---|
| | an advantage of the proposed amendment. | |
| **Soil and Agriculture** | Neutral | Neutral |
| **Heritage, Archaeology and Palaeontology** | Neutral | Neutral |
| **Visual** | Neutral | Neutral |
| **Noise** | Neutral | Neutral |
| **Traffic** | Neutral | Neutral |
| **BESS** | Cost of setup, construction, operation and disposal are born by the Applicant. | Potential for various environmental hazards (fire, thermal runway, spillages etc.) if the recommended mitigation measures are not adhered to. |
| | The BESS will diminish the invariability of energy supply into grid – thus making power supply into the national Eskom grid more reliable. | |
| | The REIPPPP has requirements for '*key principles for the design*' of the Independent Power Producers (IPP) Request for Qualification and Proposal (RFP). If Paulputs North cannot construct an independent on-site substation with a BESS (i.e. the No-Go alternative is preferred and the project is not approved), the Paulputs North WEF project may be limited in its capacity to be a competitive bidder within the REIPPP or any programmes going forward. | |
| | Improved efficiency of the Paulputs North WEF and reduction in operational interruptions of the WEF as a result of an unstable grid or reduced wind resource | |

## 12 CONCLUSION AND RECOMMENDATIONS

The EAP is of the opinion that the information contained in this amendment report, its appendices and Volume II, present a suitable independent evaluation of the proposed amendment and is sufficient in providing registered and potential I&APs with a transparent and objective assessment report.

Over and above what was previously recommended in the 300 MW Paulputs WEF EIA, 2019, specialists have provided input into this amendment, and have recommended that the following mitigation measures be considered by the DFFE as part of the authorisation of the amendment decision. Note that these conditions are not included within the approved Environmental Authorisation.

- If any turbines are removed as a result of the use of larger turbines at a later stage then priority should be given to removing turbines close to the N14.

- Implement a long-term monitoring programme to be used during construction and operation phase to monitor the population of the *Aloidendron dichotomum*. The programme should, at minimum, include the following parameters and activities:
    - Size and GPS location of all *Aloidendron dichotomum* plants found on site. Photographs of all individuals present is also recommended for documentation purposes.
    - Annual monitoring of size-class structure, including any new deaths, disappearances, and seedlings that have appeared.
    - If any seedlings and young plants disappear, then the local populations should be supplemented with seedlings cultured from seed collected on-site.
    - There should be signage present at all entrances to the site warning against the illegal collection of any fauna and flora.
- It is important to note that a permit from DALRRD would be required for any impacts on nationally protected tree species, while a permit from DENC would also be required for general clearing and any clearing or removal of provincially protected species. These permits would be informed by a preconstruction walk-through of the final development footprint.

Over and above the mitigation and design measures suggested in Table 10-1 and 10-2 of the high-level BESS risk assessment, the following conditions of authorisation are proposed:

- Birds must be dissuaded from nesting within the substation and BESS facility through the use of bird spikes or the use of deterrents as recommended by a specialist.
- The applicant must compile and implement the following additional programs to be submitted as part of the EMPr to the Competent Authority prior to the commencement of installation of the BESS:
    - Tactical Fire Response Plan;
    - Lifecycle Battery Recycling programme;
    - First Responder Training manual;
    - Thermal management and monitoring programme; and
    - BESS operations and maintenance programme.

It is the opinion of the EAP that the proposed amendments will not affect any change in the impact ratings from those which were assessed during the Paulputs WEF EIA undertaken by Arcus in August 2019.

The **proposed amendment can be authorised** subject to the applicant adhering to all mitigation and management measures outlined in this final amendment report, the approved Paulputs WEF EIA and the Paulputs North WEF EMPr.

**APPENDED FIGURES**

## APPENDIX A: EAP DECLARATION OF INDEPENDENCE AND CV

# APPENDIX B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

## APPENDIX C: PUBLIC PARTICIPATION REPORT