ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
DRAFT BASIC ASSESSMENT REPORT

PROPOSED CONSTRUCTION OF A POWER LINE FROM THE AGGENEYS SOLAR ONE ENERGY FACILITY TO THE AGGENEIS MTS SUBSTATION ON THE REMAINING EXTENT OF PORTION 3 OF THE FARM ZUURWATER 62, NORTHERN CAPE PROVINCE

DEA REF NO: 14/12/16/3/3/1/1270

DRAFT REPORT FOR PUBLIC REVIEW

December 2014

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

Title:	:	Environmental Basic Assessment Process Proposed Power Line from the Aggeneys Solar One Energy Facility to the Aggeneis MTS Substation on the Remaining Extent of Portion 3 of the Farm Zuurwater 62, Northern Cape Province
Authors:	:	Savannah Environmental Steven Ingle Karen Jodas
Sub-consultants:	:	Marianne Strohbach (Ecologist) Heritage Contracts and Archaeological Consulting (Heritage specialist)
Applicant:	:	PV Africa Development Proprietary Limited
Report Status:	:	Draft Report for review
Review period:	:	1 December 2014 to 19 January 2015

When used as a reference this report should be cited as: Savannah Environmental (2014) Draft Basic Assessment Report: Proposed Power Line from the Aggeneys Solar One Energy Facility to the Aggeneis MTS Substation on the Remaining Extent of Portion 3 of the Farm Zuurwater 62, Northern Cape Province

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SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Applications for Environmental Authorisation were undertaken for photovoltaic solar energy facilities situated on the remaining extent of Portion 3 of the Farm Zuurwater 62 situated near Aggeneys in the Khai Ma Local Municipality of the Namakwa District Municipality in the Northern Cape Province. Five solar energy facilities were authorised, namely:

- Unit 4 and Unit 5 (collectively make up 75MW)
- Phase 1
- Phase 2
- Phase 3
- Phase 4

Phases 1 to 4 of the Zuurwater PV Facility received Environmental Authorisations in July 2014. Power line routes to the Aggeneis MTS Substation were approved as part of the Environmental Authorisation for Phases 1 – 4. These power lines are situated parallel to the existing Aggeneis – Nama 220kV power line.

Environmental Authorisations for the construction of the Unit 4 and Unit 5 Photovoltaic facilities were issued by the Department of Environmental Affairs on 27 August 2012 (DEA Ref No's 14/12/16/3/2334/4 and 14/12/16/3/2334/5). These two authorised facilities are now to be constructed as a combined facility of up to 75MW in capacity, to be known as the **Aggeneys Solar 1** energy facility. No power line route was however assessed or approved as part of this project.

In order to evacuate the generated power of the authorised Aggeneys Solar 1 energy facility into the Eskom grid, the construction of overhead distribution power lines is required. PV Africa Development (Pty) Ltd is therefore proposing to construct an overhead power line (of up to 275kV) from the Aggeneys Solar 1 energy facility on-site substation to the existing Eskom Aggeneis MTS Substation, situated approximately 4 km east of the authorised project site.

The position of the approved Aggeneys Solar 1 energy facility relative to the approved Phases 1 – 4 (including associated power lines) on the remaining extent of Portion 3 of the Farm Zuurwater 62 is indicated in Figure 1. This Basic Assessment Report addresses the construction of a power line of approximately 4km in length between the Aggeneys SolarAggeneys Solar 1 energy facility Substation to the existing Aggeneis MTS Substation with a servitude of up to 38m. This Basic Assessment considers a 300m wide corridor within which this servitude will be placed.

The proposed power line will share a common corridor with the existing Aggeneis – Nama 220kV power line as well as the authorised power line routes for the Zuurwater PV Projects (Phases 1 – 4).

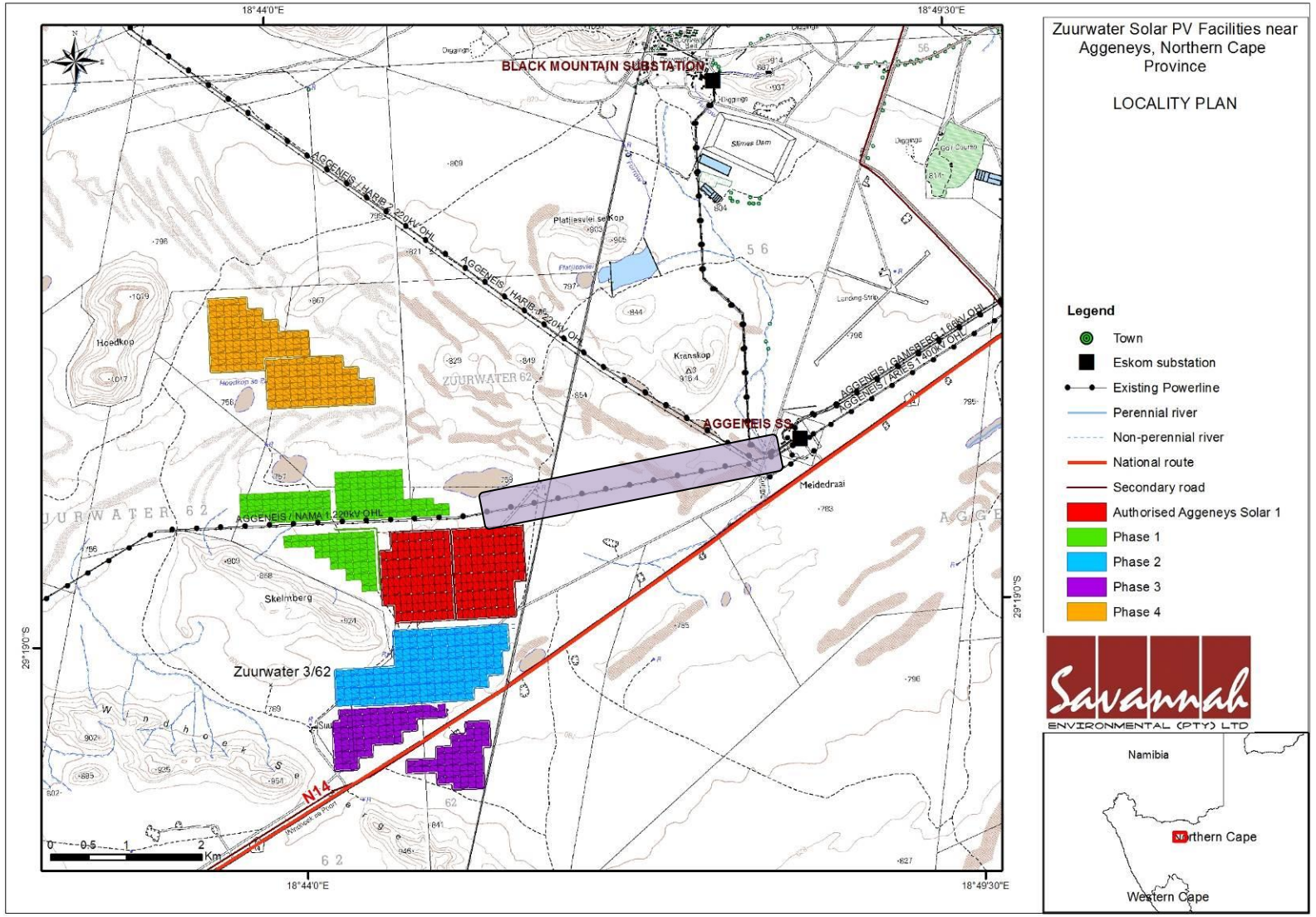

Figure 1: Authorised Aggeneys Solar1 relative to the authorised Zuurwater Phase 1 – 4 PV projects. Common power line corridor is indicated by purple rectangle along the existing power line.

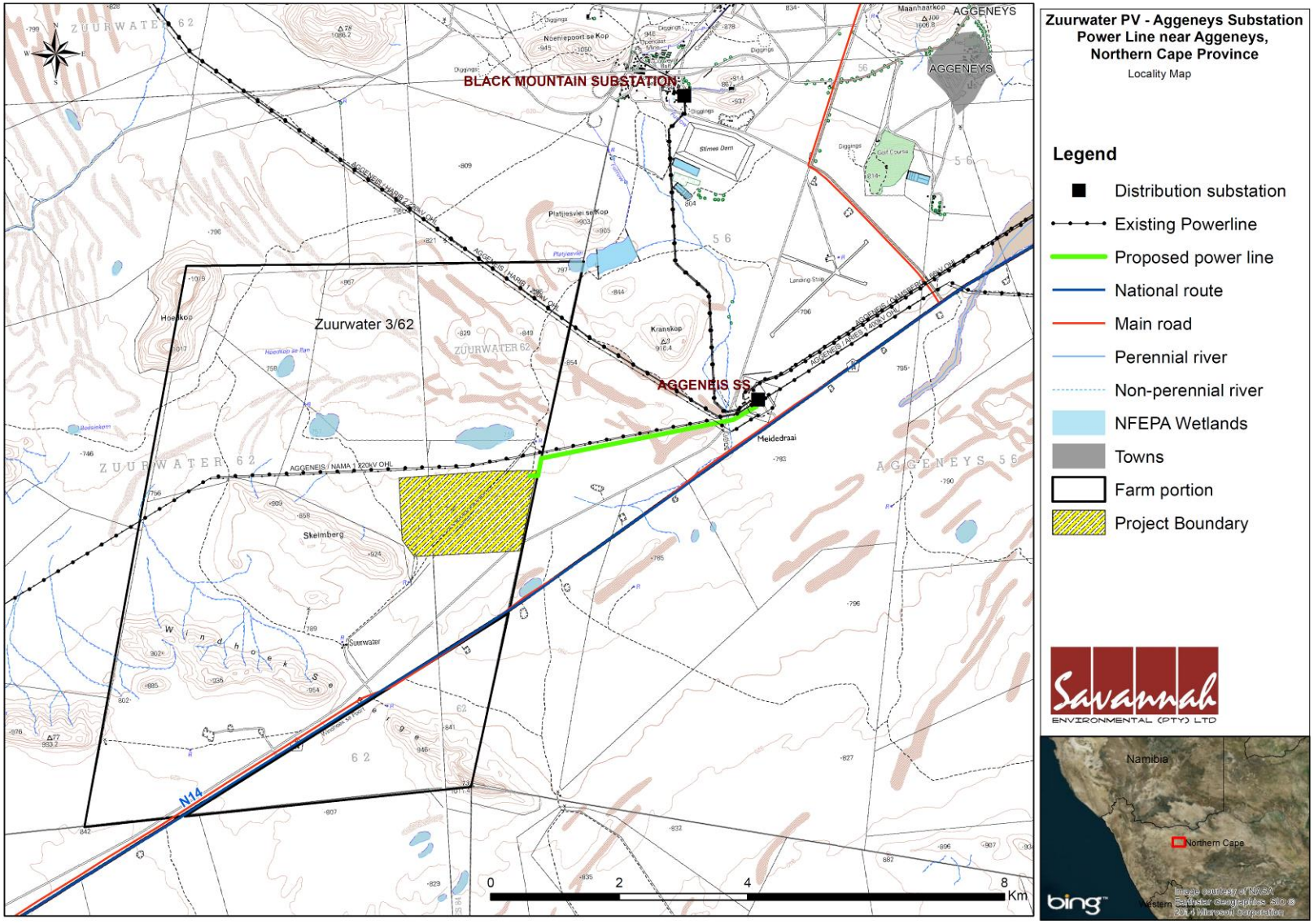

Figure 2: Locality map showing the Aggeneys Solar 1 energy facility and the proposed power line to the Aggeneiss MTS Substation on the remaining extent of Portion 3 of the Farm Zuurwater 62

1.1 NEED FOR THE PROPOSED DEVELOPMENT

The need and justification for the proposed power line is partly linked to that put forward in the EIA report for Unit 4 and Unit 5 Solar Energy Facilities applications for Environmental Authorisation, authorised in August 2012 (14/12/16/3/2334/4 and 5). This is due to the fact that the proposed power line constitutes essential infrastructure for the solar facility, without which the authorised Aggeneys Solar 1 project would be rendered technically flawed and undevelopable.

In considering the existing development scenario and the ecological context, the developer has provided three power line alignment alternatives for consideration and assessment. The primary rationale for the alternatives provided are based on the capacity for potential sharing with future projects as well as the mitigation of impacts through alignment of the power line with existing linear infrastructure which are considered linear disturbances in the landscape.

From an overall sensitivity and planning perspective, the proposed power line is not considered contrary to the broader strategic context of the municipality and is in line with broader societal needs and the public interest as it is linked to a renewable energy facility. No exceedance of ecological limits will result from the construction of the proposed power line and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment report.

1.2 REQUIREMENT FOR AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In terms of the EIA Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), authorisation is required from the National Department of Environmental Affairs (DEA) as the competent authority, with the Northern Cape Department of Environment and Nature Conservation (DENC) as the commenting authority. In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GN R543 -GN R546 (as amended), a Basic Assessment process is required to be undertaken for the proposed project. An application has been submitted to the DEA and was accepted on 29/08/2014.

An environmental impact assessment is an effective planning and decision-making tool for the project developer as it provides the opportunity for the developer to be fore-warned of potential environmental issues and to assess if potential environmental impacts can be avoided, minimised or mitigated to acceptable levels. The Basic Assessment process forms part of the feasibility studies for a proposed project and will inform the final design process in order to ensure that environmentally sensitive areas are avoided as far as possible. Comprehensive, independent environmental studies are required in accordance with the EIA Regulations to provide the competent authority with sufficient information in order to make an informed decision.

1.3 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER AND EXPERTISE TO CONDUCT THE BASIC ASSESSMENT PROCESS

Savannah Environmental was contracted by PV Africa Development (Pty) Ltd as the independent environmental consultant to undertake the Basic Assessment process for the proposed power line. Neither Savannah Environmental, nor any of its specialist sub-consultants on this project are subsidiaries of, or are affiliated to PV Africa Development (Pty) Ltd. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consultancy which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa, including those associated with electricity generation, specifically from renewable sources.

The EAPs from Savannah Environmental who are responsible for this project are:

» Steven Ingle, the principle author of this report, holds a Bachelors degree in Environmental Management and has 8 years of experience in environmental management and has undertaken numerous EIAs for a number of proposed large-scale infrastructure project and renewable energy facilities across South Africa.
» Karen Jodas - the principle Environmental Assessment Practitioner (EAP) for this project, is a registered Professional Natural Scientist and holds a Master of Science degree. She has 16 years of experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently responsible for the project management of EIAs for several renewable energy projects across the country.

In order to adequately identify and assess potential environmental impacts, several specialists have been appointed to conduct specialist studies, as required:

Specialist Studies Undertaken	Specialists
Ecology Impact Assessment	Marianne Strohbach (Ecologist)
Heritage Impact Assessment	Jaco van der Walt of Heritage Contracts and Archaeological Consulting (Archaeologist)

Curricula vitae for the Savannah Environmental and specialist project team are included in **Appendix J**.

REVIEW OF THE BASIC ASSESSMENT REPORT

The Draft Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the proposed Power Line. The report was made available for public review from 1 December 2014 to 19 January 2015 at the following places:

- Aggeneys Library
- www.savannahSA.com

Notification of I&APs of the draft BAR has been provided to I&APs and the report has been posted on the Savannah Environmental website.

The 30-day review period is from **1 December 2014 to 19 January 2015**

In order to obtain further information, register on the project database, or submit written comment please contact:

Gabriele Wood of **Savannah Environmental**

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SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	[redacted] NO ✓

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

Describe the project associated with the listed activities applied for

Applications for Environmental Authorisation were undertaken for photovoltaic solar energy facilities situated on the remaining extent of Portion 3 of the Farm Zuurwater 62 situated near Aggeneys in the Khai Ma Local Municipality of the Namakwa District Municipality in the Northern Cape Province. Five solar energy facilities were authorised, namely:

- Unit 4 and Unit 5 (collectively make up 75MW)
- Phase 1
- Phase 2
- Phase 3
- Phase 4

Phases 1 to 4 of the Zuurwater PV Facility received Environmental Authorisations in July 2014. Power line routes to the Aggeneis MTS Substation were approved as part of the Environmental Authorisation for Phases 1 – 4. These power lines are situated parallel to the existing Aggeneis – Nama 220kV power line.

Environmental Authorisations for the construction of the Unit 4 and Unit 5 Photovoltaic facilities were issued by the Department of Environmental Affairs on 27 August 2012 (DEA Ref No's 14/12/16/3/2334/4 and 14/12/16/3/2334/5). These two authorised facilities are now to be developed as a combined facility of up to 75MW in capacity, to be known as the **Aggeneys Solar 1** energy facility. No power line route was however assessed or approved as part of this project.

In order to evacuate the generated power of the authorised Aggeneys Solar 1 energy facility into the Eskom grid, the construction of overhead distribution power lines is required. PV Africa Development (Pty) Ltd is therefore proposing to construct an overhead power line (of up to 275kV) from the Aggeneys Solar 1 energy facility on-site substation to the existing Eskom Aggeneis MTS Substation, situated approximately 4 km east of the authorised project site.

Description of the preferred power line route:

The proposed power line route traverses the remaining extent of Portion 3 of the Farm Zuurwater 62 which is owned by the Black Mountain Mine. The proposed power line will be approximately 4km in length and situated parallel (and south of) the existing Aggeneis – Nama 220kV power line and the approved power line routes for Phases 1 – 4. All existing, authorised and proposed power lines will therefore share a common corridor.

From the point of origin at the project on-site substation at the north eastern boundary of the authorised PV facility, the power line route is proposed to run parallel to a farm boundary to the north east for approximately 300m before turning east (bend point 1) and traversing very arid terrain for approximately 3km (bend point 2) and then continues for another 350m (to bend point 3) before entering the Aggeneis MTS Substation at its western boundary (refer to Figure 2).

Description of the environment within the preferred route:

The majority of the power line route is sandy, undulating plains with dune ridges occurring at two intervals. No defined drainage lines occur along the route however there is a visible wash approximately 200m from the boundary fence of the Aggeneis MTS Substation. The placement of power line towers in this area should span the length of these features.

Route Alternatives:

All route alternatives considered traverse the remaining extent of Portion 3 of the Farm Zuurwater 62, which is owned by the Black Mountain Mine. Three (3) route alternatives are considered in this Basic Assessment report as follows:

- Routes already considered to be optimised in terms of aligning the proposed power line with existing and authorised power lines or existing roads which constitute current and future linear disturbances (thereby minimising and mitigating additional environmental impacts) including:
  - the preferred route due to its alignment with existing and authorised power line routes and existing access roads.
  - an alternative southerly alignment, the majority of which could be situated adjacent to the old N14 route; this option will have a large number of bends along its length, therefore making it the least cost-effective option.
- Most direct route with fewer bends on the line therefore making it the most cost-effective option. This route will not be aligned with existing linear features but has been assessed to follow a less sensitive alignment from an ecological perspective.

Development phases

In order to construct the proposed power line, a series of activities will need to be undertaken during the design, pre-construction construction, operation and decommissioning phases.

Construction phase:

Power lines are constructed in the following simplified sequence:

Step 1: Determination of technically feasible route/s
Step 2: EIA input into route selection
Step 3: Negotiation of final route with affected landowners
Step 4: Survey of the route
Step 5: Determination of the conductor type
Step 6: Selection of best-suited conductor, towers, insulators, foundations
Step 7: Final design of line and placement of towers
Step 8: Issuing of tenders, and award of contract to construction companies
Step 9: Vegetation clearance and construction of access roads (where required)
Step 10: Tower pegging
Step 11: Construction of foundations
Step 12: Assembly and erection of towers
Step 13: Stringing of conductors
Step 14: Rehabilitation of disturbed area and protection of erosion sensitive areas
Step 15: Testing and commissioning

Construction of the proposed power line will take approximately 6 months to complete.

Depending on the capacity of the power line, power line towers (or pylons) are an average distance of 200m apart but can vary between 250m and 375m depending on the topography and terrain to be spanned. The self-supporting structure (suspension pole) is typically used along the straight sections of the power line route, while the guyed intermediate or guyed suspension and angle strain structures are used where there is a bend in the power line alignment. The towers to be used are however dependent on a number of site-specific factors, including the topography, geotechnical conditions and landowner requirements.

Construction of access roads to the tower positions and construction of tower foundations will be the most significant construction phase environmental impact due to transformation of the surface area required for road clearing, and for the laydown of components for the construction of each pylon. The footprint of each tower will be approximately 10mx10m (100m²) depending on the final structure to be used (suspension pole or bend structure). The transformation of land due to the construction of new access roads to the tower positions along power line Alternative 1

will be limited in extent due to the relatively short distance of the proposed power line from existing access roads. The transformation of land due to the construction of access roads to the tower positions along the preferred power line alternative will be limited in extent as such access roads to the existing Aggeneis – Nama 220kV power line have already been established.

The servitude width of between 33m and 38.5m will be required depending on the final capacity of the line to be determined in consultation with Eskom. The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be in accordance with Eskom standards. On receipt of an approval of the final route by the environmental Authorities and after negotiations with landowners, the final definition of the centre line for the power line and co-ordinates of each bend in the line will be determined. Optimal tower sizes and positions will be identified and verified using a detailed ground survey (in terms of the Environmental Management Programme (EMPr) requirements).

Operation Phase:

The proposed power line will require routine maintenance work throughout the operation period. The power line servitude will be accessed using access roads from the N14 and existing farm roads in the area and any access roads established during the construction phase. A servitude of between 33m and 38.5m will be required along the length of the power line depending on the final capacity of the line to be determined in consultation with Eskom. During this phase vegetation within the servitude will require management only if it impacts on the maintenance objectives of the power line.

Decommissioning Phase:

The power line is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life, or if no longer required. If economically feasible/desirable the decommissioning activities would comprise the disassembly of the individual components and removal from site. This phase would include the following decommissioning activities:

» Site Preparation: Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

» Disassemble Components: The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.

» Rehabilitation: Disturbed area (where infrastructure has been removed) will be rehabilitated, if required, depending on the future land-use of the facility.

Provide a detailed description of the listed activities associated with the project as applied for

The following listed activities are relevant to the proposed development:

Notice and Activity Number	Description	Relevance of Regulation to Project
GN544, 18 June 2010 Activity 10 (i)	The construction of facilities or infrastructure for the transmission and distribution of electricity- (i). outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kV	An overhead power line (of up to 275kV) is proposed to be constructed from the approved PV solar energy facility on-site substation to the Eskom Aggeneis Substation.
GN544, 18 June 2010 Activity 11	The construction of: (x). buildings exceeding 50 square metres in size; or (xi). Infrastructure or structures covering 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse	The proposed power line and associated infrastructure may be situated within 32 metres of a watercourse (drainage line).
GN 544, 18 June 2010 Activity 18	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from: (i) a watercourse;	Associated infrastructure (e.g. establishment of access roads) may require that the infilling or depositing of materials within a drainage line be undertaken.
GN 546, 18 June 2010 Activity 4 (a) (ii) (ee)	The construction of a road wider than 4 metres with a reserve less than 13.5 metres (a). Northern Cape Province ii. Outside urban areas in: (ee). Critical biodiversity areas as identified in systematic biodiversity plans adapted by the competent authority or in bioregional plans	The power line and associated infrastructure may require the development of new access roads wider than 4 metres in areas falling within Critical Biodiversity Areas (CBA 2 and Ecological Support Areas) situated east of the approved PV solar facility delineated in the Northern Cape Province.
GN 546, 18 June 2010	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous	The power line and associated infrastructure may require the clearance of vegetation in areas

Notice and Activity Number	Description	Relevance of Regulation to Project
Activity 12 (b)	vegetation. (b) Within critical biodiversity areas identified in bioregional plans;	falling within Critical Biodiversity Areas (CBA 2 and Ecological Support Areas) delineated in the Northern Cape Province.
GN 546, 18 June 2010 Activity 14 (a) (i)	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation (a). Northern Cape Province (i). All areas outside urban areas	The proposed power line and associated infrastructure may require the clearance of an area of 5 hectares or more of vegetative cover where 75% or more may constitute indigenous vegetation.
GN 546, 18 June 2010 Activity 16 (iii) (iv) (a) (ii) (ff)	The construction of: (iii). buildings with a footprint exceeding 10 square metres in size; or (iv). infrastructure covering 10 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse (a). Northern Cape Province (ii). Outside urban area, in: (ff). Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	The proposed power line pylons may impede upon watercourses or be situated within 32 metres of a watercourse in a site falling within Critical Biodiversity Areas.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means

by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Not applicable. Only route alternatives are considered below.

Alternative 1		
Alternative 2		
Alternative 3		

In the case of linear activities:

1. Alternative 1: Preferred route due to its alignment with existing and authorised power line routes and existing access road

	Latitude (S):			**Longitude (E):**		
• Starting point of the activity	29°	18′	21.80″	18°	45′	59.51″
• Middle/**Additional point** of the activity	29°	18′	21.80″	18°	45′	59.51″
• End point of the activity	29°	17′	52.42″	18°	48′	09.51″

The proposed preferred route is considered to be optimised in terms of aligning the proposed power line with existing and authorised power lines or existing roads which

constitute current and future linear disturbances and thereby minimising additional environmental impacts. This route is situated parallel to (within 120m) the existing Aggeneis – Nama 220kV power line and parallel to authorised power line routes for the following PV projects:

- » Zuurwater PV Project Phase 1 - 14/12/16/3/3/2/470
- » Zuurwater PV Project Phase 2 - 14/12/16/3/3/2/471
- » Zuurwater PV Project Phase 3 - 14/12/16/3/3/2/472
- » Zuurwater PV Project Phase 4 - 14/12/16/3/3/2/473

The majority of the route is described as sandy, undulating plains with dune ridges occurring at two intervals. No defined drainage lines occur along the route however there is a visible wash approximately 200m from the boundary fence of the Aggeneis MTS Substation. The spacing of pylons along the line should span the length of these features to avoid impacting on them.

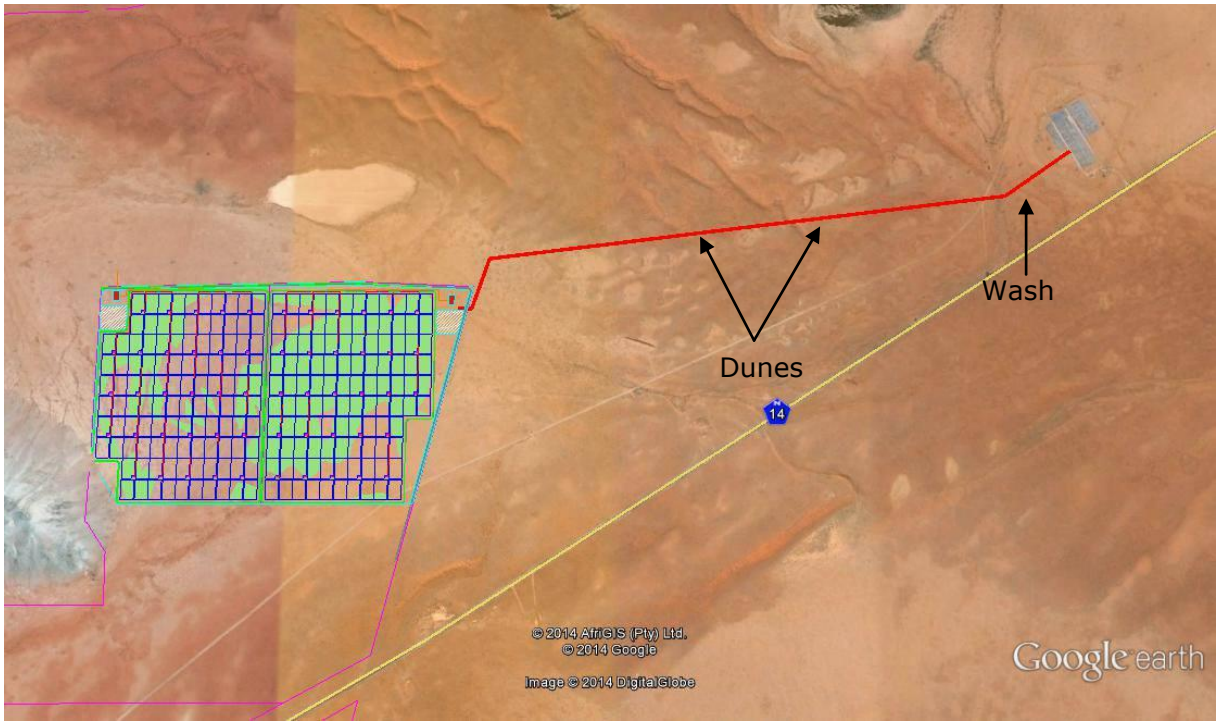

Figure 3: Preferred route (Alternative 1) shown by the red line from Aggeneys Solar 1 on-site substation to the Aggeneis MTS Substation

2. Alternative 2: Route parallel to the old N14 route (existing linear disturbance)

	Latitude (S):			**Longitude (E):**		
• Starting point of the activity	29°	18′	21.80″	18°	45′	59.51″
• Middle/**Additional point** of the activity	29°	18′	21.80″	18°	45′	59.51″

• End point of the activity	29°	17′	52.42″	18°	48′	09.51″

The Alternative 2 alignment is situated parallel to the old N14 road which constitutes a linear disturbance in the landscape, thereby potentially minimising additional environmental impacts. Of the alternatives considered, this route has the most number of bends along the line making it the least cost-effective option.

No defined drainage lines occur along the route, however visible washes are traversed at approximately 1.4km along the route and approximately 200m from the boundary fence of the Aggeneis MTS Substation. The spacing of pylons along the line should span the length of these features to avoid impacting on them.

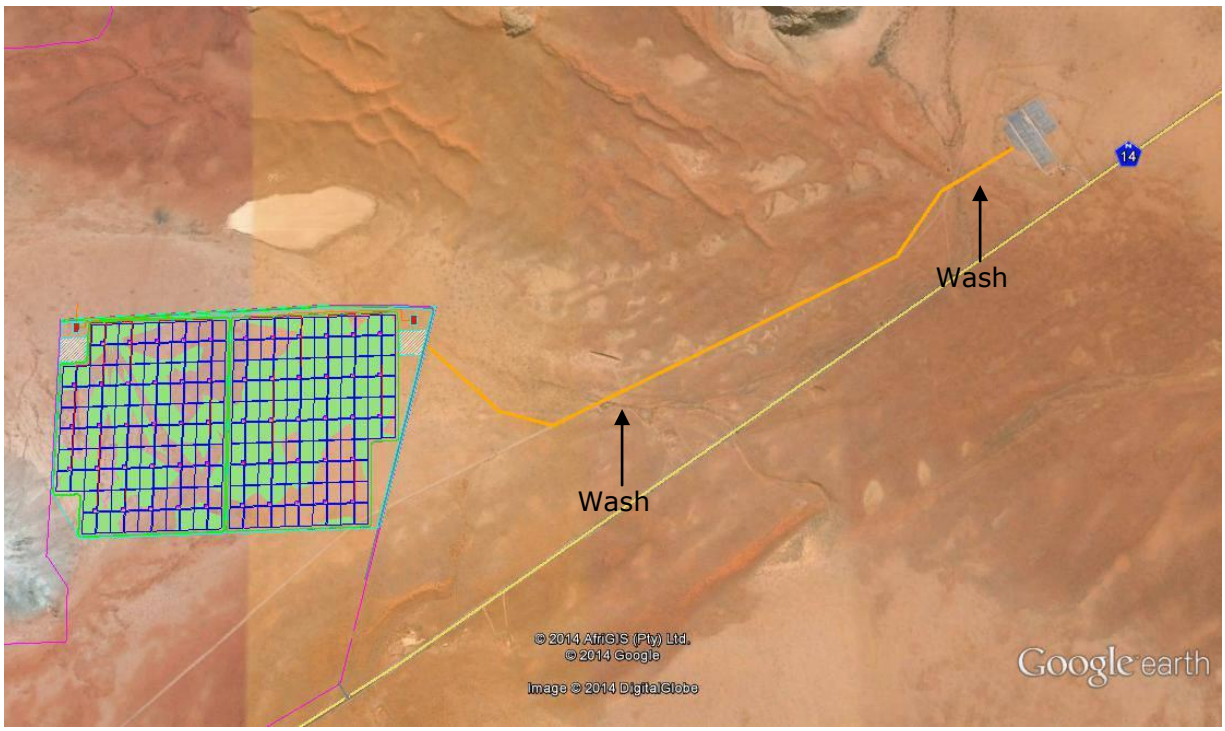

Figure 4: Alternative 2 alignment shown by the orange line from Aggeneys Solar1 on-site substation to the Aggeneis MTS Substation

3. Alternative 3: Most direct route

	Latitude (S):			Longitude (E):		
• Starting point of the activity	29°	18′	21.80″	18°	45′	59.51″
• Middle/**Additional point** of the activity	29°	18′	21.80″	18°	45′	59.51″
• End point of the activity	29°	17′	52.42″	18°	48′	09.51″

The Alternative 3 alignment is not situated parallel to linear disturbances but presents the most direct and therefore the shortest and most cost-effective option due to the least

number of bends required along the line. This route has been assessed to follow a less sensitive alignment from an ecological perspective than the preferred route as no dunes are located along the alignment.

This alignment is situated to the south of the identified dunes (which occur along Alternative 1 and the authorised Phase 1-4 routes). No defined drainage lines occur along the route, however a visible wash is situated approximately 200m from the boundary fence of the Aggeneis MTS Substation. The spacing of pylons along the line should span the length of the wash to avoid impacting on it.

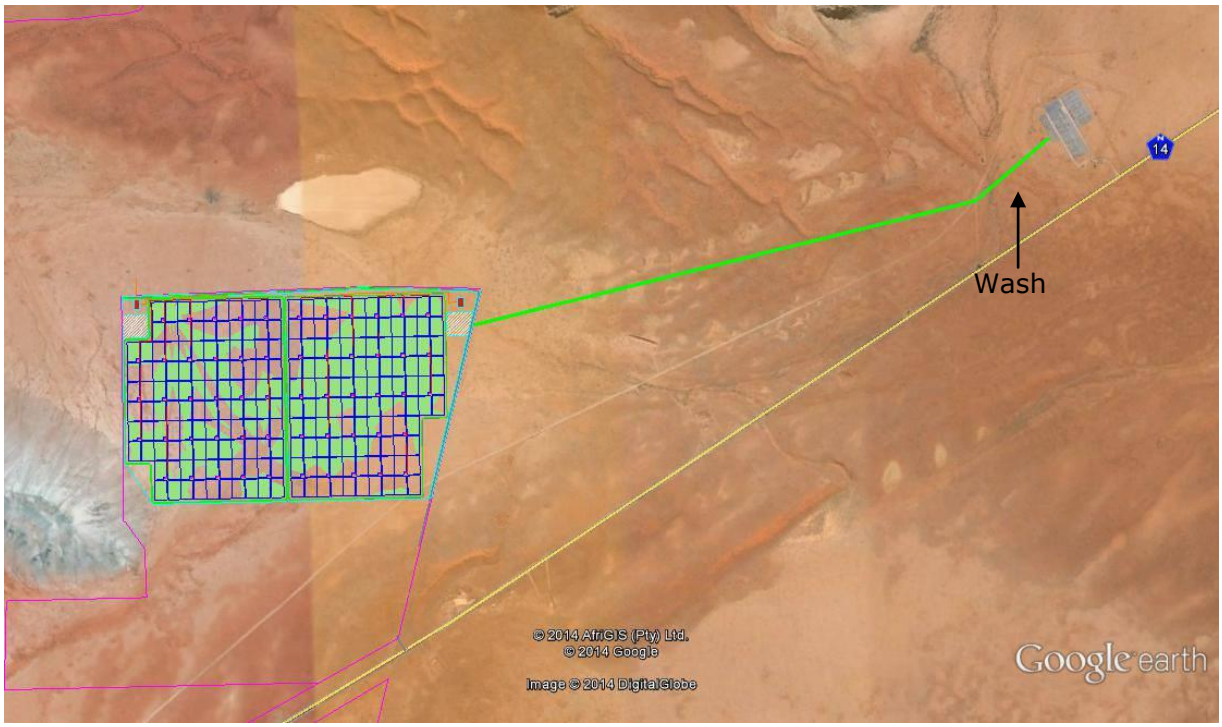

Figure 5: Alternative 3 alignment shown by the green line from Aggeneys Solar1 on-site substation to the Aggeneis MTS Substation

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

Power line coordinates for at 250m intervals have been attached in **Appendix A.**

b) Layout alternatives

There are no layout alternatives proposed for the power line corridor since:

» The placement of the power line towers and any associated access roads will be required to be in line with technical requirements as per Eskom's recommendations as well as with specific landowner requirements.
» A corridor of 300m wide around the proposed power line servitude has been assessed and any deviations deemed necessary for environmental, landowner specific and/or technical reasons from the centre point of the power line, for 150m in either direction, are therefore possible.
» The power line route has been strategically considered due to other existing and authorised power lines (Zuurwater PV Project Phases 1 – 4).
» Outside the footprint of the Aggeneys Solar1 plant, the entire route has been planned so as to reduce environmental impacts and reduce edge effects.
» Site access - the servitude is easily accessible via existing access roads from the N14, therefore reducing the need to construct new access roads.

Alternative 1 (preferred alternative)		
Description:	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

The choice of technology will be determined by Eskom and does not significantly affect the environmental impact of the proposed development in any way. Single circuit (average height of 21m) structures will be used for the proposed power line. The line must be constructed according to Eskom's standards and may therefore require a mixture of tower structures. Facility illustrations are attached in Appendix C.

Alternative 1
Alternative 2
Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
Design alternatives: Depending on the capacity of the power line (between 66kV and 275kV), power line towers (or pylons) can vary between 250m and 375m depending on the topography and terrain to be traversed. The self-supporting structure (suspension pole) is typically used along the straight sections of the power line route, while the guyed intermediate or guyed suspension and angle strain structures are used where there is a bend in the power line alignment. The towers to be used are however dependent on a number of site-specific factors, including the topography, geotechnical conditions and landowner requirements. The line must be constructed according to the authorised standards for such a power line approved by Eskom. The design of a power line is relatively standard, since it is required to conform to Eskom's technical standards as it forms part of the national electricity supply network and must fit in with the existing network systems, technology and infrastructure. It is anticipated that the spacing of the pylons can avoid all sensitive features (washes and dunes) located along the preferred alignment. The type of power line will affect the height at which the conductors will be situated. The authorised power lines for Zuurwater PV Project Phases 1 – 4 are up to 275kV in capacity and up to 50m in height. This scenario is the same for all route alternatives.
Alternative 2
Alternative 3

e) No-go alternative

This is the option of not constructing the Aggeneys Solar 1 to Aggeneis MTS Substation power line. This option is assessed as the "no go alternative" in this Basic Assessment Report (refer also to Appendix F).

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	N/A – This is a linear activity
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

or, for linear activities:

Alternative: Power lines	**Length of the activity:**
Alternative A1 (preferred activity alternative)	Approximately 3.9km
Alternative A2 (if any)	Approximately 4.1km
Alternative A3 (if any)	Approximately 3.6km

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

A corridor of 300m has been assessed through the BA process for each alternative. The servitude will be negotiated within the preferred power line corridor.

Alternative:	**Size of the site/servitude:**
Alternative 1 (preferred route)	A servitude of between 33m and 38.5m will be required along the length of the power line, depending on the final capacity of the line to be determined by Eskom.
Alternative 2	
Alternative A3 (if any)	

4. SITE ACCESS

Does ready access to the site exist?	**YES (Alternative 1 and 2)**

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

If NO, what is the distance over which a new access road will be built	N/A

Describe the type of access road planned:

Alternative 1: The N14 is the primary access road providing access to farm roads which in turn provide access to the existing Aggeneis – Nama 220kV power line, parallel to which the majority of the preferred power line alignment is proposed. An existing jeep track follows the entire extent of the power line servitude.

Alternative 2: This alignment is situated parallel to the old N14 which serves as the primary access for the majority of its length.

Alternative 3: There is no existing access along this route for the full length and new access tracks will be required to be constructed in order to reach the servitude.

Figure 6: Photograph of access point from the N14 in the direction of the existing Aggeneis – Nama 220kV power line

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site. See Appendix A.

A site plan showing the position of the access road, as well as an indication of the road in relation to the site is included within **Appendix A.**

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as **Appendix A**. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can

be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

An A3 Locality Map is attached within **Appendix A**.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as **Appendix A** to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

A detailed site plan(s) is attached within **Appendix A**

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in **Appendix A**.

A sensitivity map covering areas within the 300m corridor of the proposed power line as aligned with the regional sensitivity map of the authorised Zuurwater PV projects is attached within **Appendix A**.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under **Appendix B** to this report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

Colour photographs have been taken at major points along the power line alignment. Annotated photographs are included in **Appendix B**.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as **Appendix C** for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A preliminary facility illustration which represents a realistic image of monopole and strain/steel towers for power lines between 66kV and 275kV is shown in **Appendix C.**

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?		NO ✓	Please explain
Environmental authorisation is required to construct the proposed overhead power line. The activity is a linear infrastructure that will cross one property. A servitude (right of way) will be required to be registered across the property.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES** ✓		Please explain
The Northern Cape Province Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF notes "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised. The proposed project will facilitate the connection of the authorised Aggeneys Solar 1 energy facility to the electricity grid, which will contribute towards this objective.			
(b) Urban edge / Edge of Built environment for the area	**YES** ✓		Please explain
The proposed power line is located a minimum distance of 6 km from the town of Aggeneys. The power line corridor is located outside of the Aggeneys urban area.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**Yes** ✓		Please explain
An IDP and SDP objective of the District Municipality is to provide access to electricity to all households. To achieve this, the District aims at fast-tracking the delivery of free basic electricity and co-ordinating the maintenance and upgrading of existing electricity infrastructure. The project will not compromise any IDP objectives as it will assist it in reaching its objectives by supporting the local electricity supply through strengthening of power supply to the Aggeneis MTS Substation. It is expected that construction of the power line would start by 2015/2016 should the Aggeneys Solar 1 project be awarded preferred bidder status. The success of the project will create upliftment of the community through the required Economic			

Development initiatives as stated in the RfP (Request for proposal) of the REIPPP Programme (Renewable Energy Independent Power Producer Procurement Programme) which currently are: » Local community ownership in the project » Sustainable Economic Development initiatives			
(d) Approved Structure Plan of the Municipality	**YES** ✓		Please explain
The primary IDP and SDF objective of the District Municipality is to provide access to electricity to all households in the district. To achieve this, the district aims at fast-tracking the delivery of free basic electricity and co-ordinating the maintenance and upgrading of existing electricity infrastructure. The proposed project will facilitate the connection of the authorised Aggeneys Solar 1 energy facility to the electricity grid, which will contribute towards this objective.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		NO ✓	Please explain
No EMF for the district was identified. Based on the number of projects already approved and the precedent which has been set, the integrity of environmental priorities will not be compromised provided that energy planning is done in such a manner as to minimise cumulative impacts. Environmental issues will be appropriately addressed through this Basic Assessment process being undertaken in terms of the requirements of NEMA. The power line will be supporting the renewable energy project and will enable clean energy generation as a sustainable resource, which holds significant benefits for the local region and the country as a whole. Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The project aims at addressing all possible environmental issues associated with the development and addressing measures to mitigate environmental issues.			
(f) Any other Plans (e.g. Guide Plan)	**YES**	**NO**	Please explain
N/A			

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES** ✓		Please explain
The Municipality has considered the approved PV projects and their power line alignment in the area in its planning. The proposed land use (preferred power line alternative) does not deviate from the current use (energy distribution).			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES** ✓		Please explain
The power line forms part of the associated infrastructure of the Aggeneys Solar 1 project, which has already been identified to be a societal priority due to its socio-economic contribution to the area.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES** ✓		Please explain
It is anticipated that the required services including water and electricity will be sourced from the municipality or the Black Mountain Mine during the construction phase. The relevant person/organisation will be approached. No additional capacity will need to be created to cater for the development.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)		**NO** ✓	Please explain
The proposed project is to be developed by a private developer (i.e. PV Africa) and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The project will not have any implications concerning infrastructure planning of the municipality.			

7. Is this project part of a national programme to address an issue of national concern or importance?	**YES ✓**		Please explain
The current electricity imbalances in South Africa highlight the significant role that renewable energy can play in terms of power supplementation. Given that renewables can generally be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the REIPPP Programme. This energy will be produced from various renewable energy technologies including solar energy facilities. The proposed project will facilitate the connection of the Aggeneys Solar 1 energy facility to the electricity grid.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES ✓**		Please explain
The proposed power line corridor (preferred alignment) is considered to be the most appropriate routing of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. The proposed land use is contextualised through the existing linear disturbances along the preferred alignment, considering existing and other approved power lines (Zuurwater Phases 1 – 4).			
9. Is the development the best practicable environmental option for this land/site?	**YES ✓**		Please explain
The power line will connect the Aggeneys Solar 1 energy facility to the national electricity grid. In terms of Eskom's requirements, the solar energy facility is required to connect to the existing Eskom Aggeneis MTS Substation. The proposed power line corridor (preferred alignment) is considered to be the most appropriate routing of this infrastructure, taking technical (nearest suitable grid connection point) and environmental (social and biophysical) issues into consideration. The specialist studies undertaken as part of this Basic Assessment conclude that the development of the power line within the corridor investigated (preferred alignment) will have environmental impacts of low overall significance.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES ✓**		Please explain
The proposed project will facilitate the connection of the Aggeneys Solar 1 energy facility to the national grid thereby facilitating the transmission of renewable energy and the upliftment of the local community through socio economic development initiatives. This will have a positive impact at a local, regional and national level. The			

specialist studies undertaken as part of this Basic Assessment conclude that the development of the power line within the corridor investigated (preferred alignment) will have environmental impacts of overall low significance. The benefit of the power line connecting the solar facility to the electricity grid outweigh any negative aspects relating to the construction and associated loss of land.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**NO** ✓	Please explain
A precedent for renewable energy facilities, substations, and power line infrastructure has been set for the area due to the existing power line and substation infrastructure and various approved solar facilities and associated power lines. There are similar developments proposed in the area which have received environmental authorisations, the nearest of which are the Zuurwater PV Phase 1 – 4 projects and their associated power lines.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO** ✓	Please explain
A single private landowner will be affected by the proposed project. The landowner has been consulted by the developer and the EAP and is aware of the proposed project. It is anticipated that the land owner will provide consent to construct the power line over their land provided that preferred bidder status is awarded to the Aggeneys Solar 1 Energy Project. Compensation of the landowner will occur should the power line be established. Placement of the line within the corridor assessed will be negotiated with the affected landowner in order to minimise impacts on land use.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO** ✓	Please explain
The proposed power line is located a minimum distance of 6km from the town of Aggeneys. The power line corridor is located outside of the Aggeneys urban area. The project will not undermine the urban edge in any way.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES** ✓		Please explain
While the distribution network infrastructure is not specifically seen to be a SIP, the proposed power line will form essential infrastructure for a renewable energy project which is deemed to be a potential SIP (SIP 8) under the National Development Plan. The proposed power line from a construction perspective will provide people living in the area with opportunities to gain employments which would address the socio economic needs of individuals. The power line in operation will provide a strengthened electricity supply in the Northern Cape which could contribute to the distribution of power to rural areas.			
15. What will the benefits be to society in general and to the local communities?			Please explain
Job opportunities, albeit limited, will be created during the construction and operation of the proposed power line. In addition, local and regional economic benefits would be realised through the additional revenue generated as a result of the proposed project			

(through direct and indirect job opportunities, local spend, local procurement, etc.). The local Eskom grid will be strengthened as a result of the proposed power line. As the Project is participating within the REIPPPP, a minimum of 1.5% of annual revenues over the 20 year life of the plant will be used to fund socio-economic development activities in the local communities. A further 0.6% will be contributed to enterprise development initiatives in the local communities.

16. Any other need and desirability considerations related to the proposed activity?	Please explain

As indicated in the IDP, the area is in need of infrastructure which will benefit the municipal economy. This project will assist in addressing this need through the strengthening of the power supply to support economic growth.

17. How does the project fit into the National Development Plan for 2030?	Please explain

By 2030 South Africa aims to reduce carbon emissions, promote economic development and increase the GDP. To achieve this, the Province has aimed to improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. This power line will assist in reducing the carbon footprint, as it will be connecting a renewable energy project to the electricity grid, and it will facilitate the infrastructure growth in the area, through employment and improved infrastructure.

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment Report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

Section 2 of NEMA states that environmental management must place people and their needs at the forefront, and serve their physical, psychological, developmental, cultural and social interests equitably. These principles of NEMA include the following:

» Development must be sustainable;
» Pollution must be avoided or minimised and remedied;
» Waste must be avoided or minimised, reused or recycled;
» Negative impacts must be minimised; and
» Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its life cycle.

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development where appropriate mitigation measures have been recommended for impacts which cannot be avoided. In addition, the successful implementation and appropriate management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation.

This process has been undertaken in a transparent manner and all effort has been made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision regarding the project can be made by the Competent Authority.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Table 1: List all legislation, policies and/or guidelines for the Aggeneys Solar1 – Aggeneis MTS Substation power line

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Legislation			
National Environmental Management Act (Act No 107 of 1998)	The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations. In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation. In terms of GNR 544 and 546 of June 2010 a Basic Assessment Process is required to be undertaken for the proposed project.	Department of Environmental Affairs – competent authority Department of Environment and Nature Conservation – commenting authority	The listed activities triggered by the proposed power line have been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment). This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.
National Environmental Management Act (Act No 107 of 1998)	In terms of the Duty of Care Provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised. In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.	Department of Environmental Affairs	While no permitting or licensing requirements arise directly by virtue of the proposed project, this section has found application during the Basic Assessment process through the consideration of potential impacts (cumulative, direct, and indirect). It will continue to apply throughout the life cycle of the project.
Environment Conservation	National Noise Control Regulations (GN R154	Department of Environmental	Noise impacts are expected to be

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
Act (Act No 73 of 1989)	dated 10 January 1992)	Affairs Department of Environment and Nature Conservation Local Authorities	associated with the construction phase of the project and are not likely to present a significant intrusion to the local community. Therefore is no requirement for a noise permit in terms of the legislation.
National Water Act (Act No 36 of 1998)	Water uses under S21 of the Act must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation.	Department of Water Affairs Provincial Department of Water Affairs	A water use license (WUL) is required to be obtained if drainage lines are impacted on in terms of Section 21 c and i of the Act. The siting of pylons can adequately avoid direct impact on drainage lines and therefore no Water Use License is expected to be required.
National Water Act (Act No 36 of 1998)	In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.	Department of Water Affairs Provincial Department of Water Affairs	This section of the Act will apply with respect to the potential impact on drainage lines, primarily during the construction phase (i.e. pollution from construction vehicles).
Minerals and Petroleum Resources Development Act (Act No 28 of 2002)	A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act. Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act.	Department of Mineral Resources	As no borrow pits are expected to be required for the construction of the power line, no mining permit or right is required to be obtained. Consent in terms of Section 53 of the MPRDA may be required to ensure that the proposed land use is not contrary to the provisions of the Act.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management: Air Quality Act (Act No 39 of 2004)	S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas." Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards.	Department of Environmental Affairs	No permitting or licensing requirements arise from this legislation. The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act.
	GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas	Department of Environmental Affairs	Describes the measures for control and monitoring of dust, including penalties.
National Heritage Resources Act (Act No 25 of 1999)	» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » Any development or other activity which will change the character of a site exceeding 5 000 m^2 in extent » The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m^2; or the re-zoning of a site exceeding 10 000 m^2 in extent. This	South African Heritage Resources Agency	A permit may be required should identified cultural/heritage sites on site be required to be disturbed or destroyed as a result of the proposed development. An HIA has been undertaken as part of the Basic Assessment Process to identify potential heritage sites. A heritage walkthrough should be undertaken following the detailed design of the power line and placement of the pylons.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. » Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.		
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007. In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase.	Department of Environmental Affairs	As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard. Specialist flora and fauna studies have been undertaken as part of the basic Assessment process. As such the potential occurrence of critically endangered, endangered, vulnerable, and protected species, as well as critically endangered (CR), endangered (EN), vulnerable (VU) or protected ecosystems and the potential for them to be affected has been considered.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).		
Conservation of Agricultural Resources Act (Act No 43 of 1983)	Regulation 15 of GNR1048 provides for the declaration of weeds and invader plants. Weeds are described as Category 1 plants, while invader plants are described as Category 2 and Category 3 plants. These regulations provide that Category 1, 2 and 3 plants must not occur on land and that such plants must be controlled by the methods set out in Regulation 15E.	Department of Agriculture	This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.
National Forests Act (Act No. 84 of 1998)	» In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or	National Department of Forestry	A permit would need to be obtained for any protected trees that are affected by the development. No such protected trees were identified

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated". » GN 1042 provides a list of protected tree species.		along within the power line corridor.
National Veld and Forest Fire Act (Act 101 of 1998)	In terms of S21 the applicant would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land. In terms of S12 the applicant must ensure that the firebreak is wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material. In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.	Department of Water Affairs	While no permitting or licensing requirements arise from this legislation, and this Act will find application during the construction and operational phase of the project.
Hazardous Substances Act (Act No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the	Department of Health	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license is required to be obtained from the Department of Health.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance » Group IV: any electronic product; and » Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	The Minister may by notice in the *Gazette* publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars	National Department of Water and Environmental Affairs Provincial Department of Environmental Affairs (general waste)	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMP (refer to Appendix G). The volumes of waste to be generated

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	on the list. In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities must be undertaken in accordance with the necessary norms and standards. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in » any other way rendered unlit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented.		and stored on the site during construction and operation of the facility will not require a waste license.
National Road Traffic Act (Act No 93 of 1996)	» The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the	» South African National Roads Agency Limited (national roads) » Provincial Department of Transport	» An abnormal load/vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits will be required for vehicles carrying

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. » Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges, and culverts. » The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.		abnormally heavy or abnormally dimensioned loads. » Transport vehicles exceeding the dimensional limitations (length) of 22m. » Depending on the trailer configuration and height when loaded, some of the substation components may not meet specified dimensional limitations (height and width).
Provincial Legislation			
Northern Cape Nature Conservation Act, Act No. 9 of 2009	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the	Provincial Department of Environmental Affairs	Permitting or licensing requirements may arise from this legislation for the proposed activities to be undertaken for the proposed project. Occasional occurrences of Hoodia *Gordonii* were identified along the proposed route and the necessary permits should be

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: » Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; » Aquatic habitats may not be destroyed or damaged; » The owner of land upon which an invasive species is found (plant or animal) must take the necessary steps to eradicate or destroy such species. The Act provides lists of protected species for the Province		applied for should these species be impacted upon.

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES** ✓	
If YES, what estimated quantity will be produced per month?	Minimal waste to be generated by the activity	

How will the construction solid waste be disposed of (describe)?

It is anticipated that construction waste will be comprised mainly of spoil material from clearing activities as well as metal and cabling off-cuts. Immediately non-biodegradable waste will be trucked to the nearest registered waste disposal facility for appropriate disposal or recycling.

Where will the construction solid waste be disposed of (describe)?

In order to comply with legal requirements should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to a licenced waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?		**NO** ✓
If YES, what estimated quantity will be produced per month?	n/a	

How will the solid waste be disposed of (describe)?

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? **NO✓**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? **NO✓**

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? **NO✓**

If YES, what estimated quantity will be produced per month? m^3

Will the activity produce any effluent that will be treated and/or disposed of on site? **NO✓**

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility? **NO✓**

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?	**NO✓**
If YES, is it controlled by any legislation of any sphere of government?	

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

During the construction phase, it is expected that there will be dust generation and emissions from vehicles and machinery. However the dust and emissions will have a short term duration (limited to construction activities) and have limited impact in terms of extent and severity. The extent of the impact will be largely restricted to the power line servitude. Appropriate dust suppression measures (as recommended in the Environmental Management Programme) will be implemented to reduce the impacts. It is recommended that construction vehicles will be serviced and kept in good mechanical condition to minimise possible exhaust emissions.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	**NO✓**

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?	**NO✓**
If YES, is it controlled by any legislation of any sphere of government?	

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

A limited amount of noise will be generated during the construction phase of the facility due to movement of heavy machinery on site. The operation phase will not generate any noise.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	**The activity will not use water**✓

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	**NO** ✓

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any that have been taken to ensure that the activity is energy efficient:

N/A

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): [ ]

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES✓**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in **Appendix D**.

Property description/ physical address:

Province	Northern Cape Province
District Municipality	Namakwa District Municipality
Local Municipality	Khai Ma Local Municipality
Ward Number(s)	Ward 4
Farm name and number	Remaining extent of Portion 3 of the Farm Zuurwater 62
Portion number	Portion 3
SG Code	C05300000000006200000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Not applicable, only one property is traversed by the proposed power line

Current land-use zoning as per local municipality IDP/records:	The properties crossed by the power line corridor is currently owned by the Black Mountain Mine which exercises surface rights over the property which is already characterised by utility uses (existing power lines).

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?	**NO✓**

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat✓	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		**2.6 Plain**	✓	2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO✓	NO✓	NO✓
Dolomite, sinkhole or doline areas	NO✓	NO✓	NO✓
Seasonally wet soils (often close to water bodies)	NO✓	NO✓	NO✓
Unstable rocky slopes or steep slopes with loose soil	YES (DUNES) ✓	NO✓	NO✓
Dispersive soils (soils that dissolve in water)	NO✓	NO✓	NO✓
Soils with high clay content (clay fraction more than 40%)	NO✓	NO✓	NO✓
Any other unstable soil or geological feature	NO✓	NO✓	NO✓
An area sensitive to erosion	NO✓	NO✓	NO✓

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Power line Alternative 1

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]✓**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	**Bare soil✓**

Power line Alternative 2

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]✓**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	**Bare soil✓**

Power line Alternative 3

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]✓**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	**Bare soil✓**

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

An Ecological assessment has been completed for the proposed facility - refer to Appendix D1.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River		NO✓
Non-Perennial River (Drainage lines) - washes	YES✓	
Permanent Wetland		NO✓
Seasonal Wetland		NO✓
Artificial Wetland		NO✓
Estuarine / Lagoonal wetland		NO✓

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Two ephemeral washes are situated between the Aggeneys Solar 1 energy facility and the Aggeneys MTS Substation. These are situated at approximately 1.4km along the route of Alignment Alternative 2 and approximately 200m from the boundary fence of the Aggeneis MTS Substation (all three alternatives). The washes are characterised by a distinct absence of a defined drainage channel; however there is a higher density of vegetation suggestive of preferential flow paths after rainfall events.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	**River, stream or wetland**✓ **(Poorly defined wash)**
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	**Mountain, koppie or ridge**✓
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	**Airport [N] (Airstrip within 1km)** ✓	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	**Other land uses: N14 highway**

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity?

There will be no impact on the nearby airstrip within 1km from the Aggeneis MTS Substation provided that sufficient clearance is provided. The Civil Aviation Authority has already specified its requirements for the Aggeneys Solar1 project.

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	**YES✓**	
Core area of a protected area?		**NO✓**
Buffer area of a protected area?		**NO✓**
Planned expansion area of an existing protected area?		**NO✓**
Existing offset area associated with a previous Environmental Authorisation?		**NO✓**
Buffer area of the SKA?		**NO✓**

The presence of a CBA 1 area north of Aggeneys, and a CBA 2 area in the vicinity of the proposed power line indicates that there are important biodiversity areas in that vicinity. An Ecological Support Area (ESA) forms a corridor south of Aggeneys. An ESA is an ecosystem that is moderately to significantly disturbed but still able to maintain basic functionality. From this data it is suggested that the power line is located in an ESA and partially within a CBA 2 area on the approach to the Aggeneis MTS Substation.

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	**NO✓**

The proposed Aggeneys Solar 1 to Aggeneis MTS Substation power line alignment will not impact on any heritage sites or no-go areas. This is because very sparse to zero heritage traces were found in the development footprint areas including power line routes based on previous studies conducted (Mcgregor Museum). The following is however recommended:

- A walkthrough survey should be undertaken following detailed design of the line and siting of the pylons within the approved corridor.
- Should anything of heritage significance be uncovered, all work on site should stop and a specialist should be contacted to investigate the find.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Will any building or structure older than 60 years be affected in any way?	**NO**✓
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**NO**✓

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The IDP identifies a number of key socio-economic development constraints and challenges with regard to the municipality, including:

» High unemployment, underemployment and economic non-participation levels, with only ~20% of the labour force permanently employed in 2010, and an increasingly larger part of the population becoming dependent on social grants.
» High poverty levels, with ~44% of households living below the poverty datum in 2010, and an overall increase in the number of poor households of 270% since 1996.
» A low growth rate in employment creation. From 1996 to 2010, only ~1 000 jobs were created in the NDM.
» A steady decline in employment provision by the NDM's traditionally key Agricultural and Mining sectors since 1996, with the former declining in 8% in relative significance in 2010, and Mining by 4.5%, resulting in a loss of ~3 100 opportunities during this period. The loss of primary sector opportunities significantly impacts on the lower skilled part of the population.

Economic profile of local municipality:

The Khai Ma IDP (2004) views the mining sector as potential injection for the local economy. Employment at Black Mountain Mine is contributing towards upliftment in the area and the municipality is looking towards the Gamsberg mining project to do the same. Some small miners operating in the area struggle because of their limited co-ordination, capacity and access to markets. Livestock farming forms a large part of the agricultural business in Khai Ma and the meat is marketed mainly to local markets and in the Northern Cape. Table grapes and other crops grown along the Orange River are largely exported. Tourism opportunities, according to the municipality, are

underdeveloped and efforts must be made to realise their potential.

Level of education:

Based on Census 2011 data, Most employed people in Khai Ma have some secondary education or primary education with 15% of the employed having grade 12.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R15 million but dependent on capacity of line to be constructed	
What is the expected yearly income that will be generated by or as a result of the activity?	Undetermined	
Will the activity contribute to service infrastructure?	**YES** ✓	
Is the activity a public amenity?		**NO** ✓
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Up to 100	
What is the expected value of the employment opportunities during the development and construction phase?	Undetermined	
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 95% to be maximised in terms of social obligations and SED requirements	
How many permanent new employment opportunities will be created during the operational phase of the activity?	The power line will be managed by Eskom	
What is the expected current value of the employment opportunities during the first 10 years?	Eskom dependent	
What percentage of this will accrue to previously disadvantaged individuals?	Eskom dependent	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b)

below) and must be provided as an overlay map to the property/site plan as **Appendix D** to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA) ✓	**Ecological Support Area (ESA)** ✓	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The presence of a CBA 1 area north of Aggeneys, and with a CBA 2 area in the vicinity of the proposed power line indicates that there are important biodiversity areas in that vicinity. An Ecological Support Area (ESA) forms a corridor south of Aggeneys. From this data it is suggested that the power line is located in an ESA and partially within a CBA 2 area on the approach to the Aggeneis MTS Substation.

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural	75%	For the first 3km of the power line corridor (preferred route) traverses land which is largely in a natural state albeit within close proximity to the existing power line.
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	
Degraded (includes areas heavily invaded by alien plants)	25%	For the last 1km of the power line corridor (preferred route), on its approach to the Aggeneis MTS Substation, the landscape is

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
		crossed by gravel access roads and fences.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0%	

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**					
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps, pans, and artificial wetlands)		Estuary		Coastline	
	Endangered						
	Vulnerable						
	Least Threatened ✓		**YES** ✓		**NO** ✓		**NO** ✓

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Regional overview: The farm Zuurwater is located in an area of vegetation and habitat transitions. The main vegetation type on site is classified as the Bushmanland Sandy Grassland vegetation unit. The larger area has at least thirteen plant species of conservation concern.

Terrestrial: Vegetation associations along or near to the power line alignment includes Grassland on Sandy Plains, Grassland on Sandy Hummocks and Bushmanland Sandy Grasslands. The proposed power line corridors support natural vegetation interspersed with current and past grazing lands. The habitats considered most sensitive along the alignments are the red dunes and deep sands within the Bushmanland Sandy Grasslands, and the proximal washes. The regic sands and dunes are highly prone to wind and water erosion. The dunes also provide key grazing areas.

Drainage systems: The drainage lines (best described as washes) in the vicinity of the power line corridors (all alternatives) are generally poorly developed on account of the low rainfall and flat topography. The washes are characterised by a distinct absence of a defined drainage channel; however there is a higher density of vegetation suggestive of preferential flow paths after rainfall events. As the wash/es along the power line route are not very wide, it is likely that the power line can span the sensitive area and it is unlikely that significant impact on the wash would be required.

Red data species: The larger area has at least thirteen plant species of conservation concern, and supports four main structural habitats for fauna (with a possibility of about five red data mammal species occurring on the site). The area is further expected to host nine threatened bird species, including the Vulnerable and near-endemic Ludwig's Bustard and Red Lark that are resident and breeding at the larger Zuurwater PV site. There is a remote possibility that 2 red data reptile species can be present, and a single red data frog species may occur in the area. Protected plant species observed along the power line alignment include *Hoodia gordonii.*

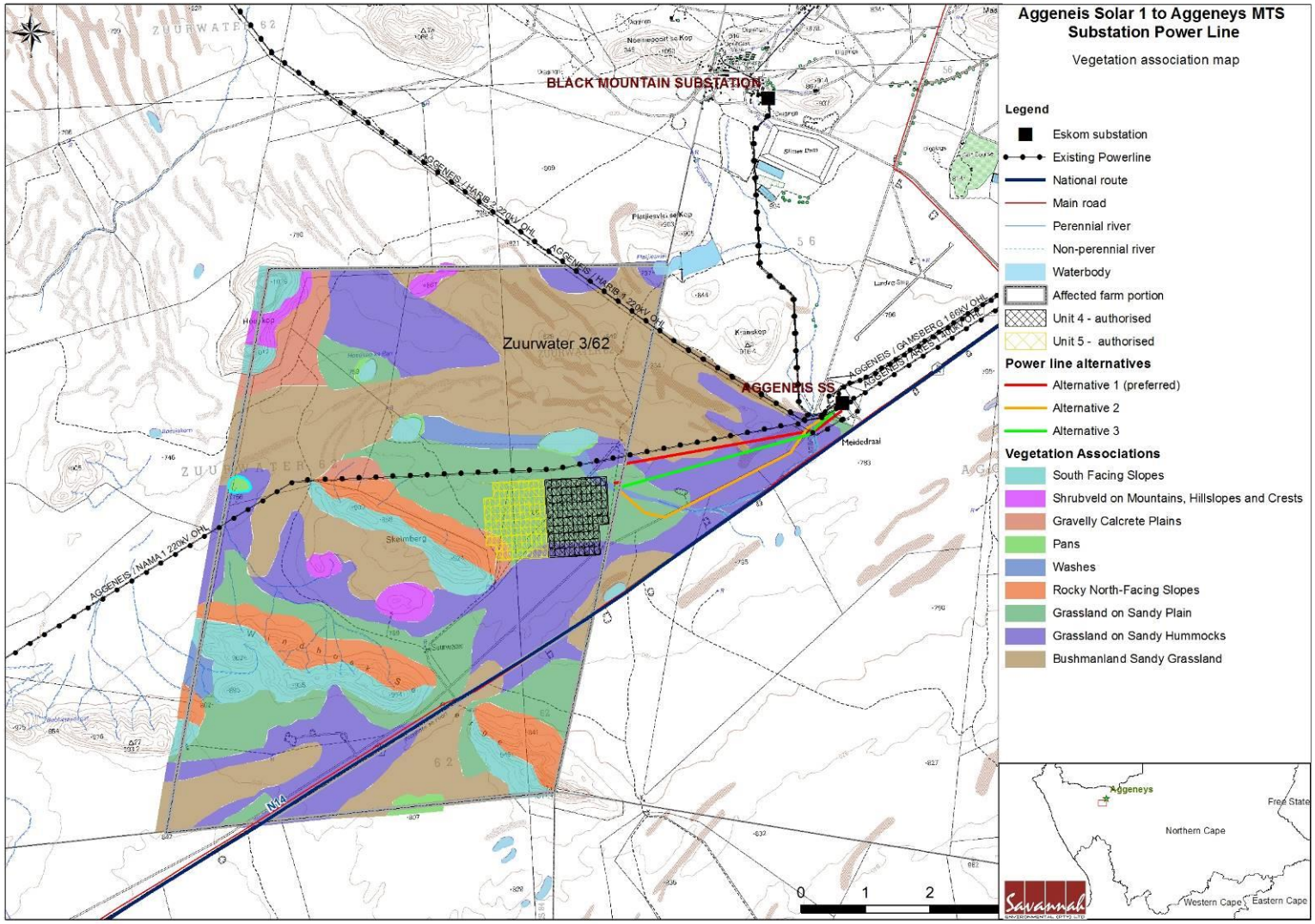

Figure 7: Fine-scale overview of the vegetation in and around the Aggeneys Solar 1 to Aggeneis MTS Substation power line (all 3 power line alternatives) as an extension of the vegetation associations mapped for the larger Zuurwater PV projects study area

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICES

Publication name	Announcement of the Basic Assessment Process and release of draft Basic Assessment Report: Gemsbok Newspaper	
Date published	3 December 2014	
Site notice position	**Latitude**	**Longitude**
	29° 20′ 07.41″ S	18° 44′ 20.38″ E
	29° 17′ 58.98″ S	18° 48′ 20.50″ E
Date placed	25 September 2014	

Include proof of the placement of the relevant advertisements and notices in **Appendix E1**.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

- Site notices were placed at the Zuurwater farm entrance gate and at the entrance to the Aggeneis MTS Substation.
- Advertisements were placed in the Gemsbok newspaper to notify the public of the proposed project and the opportunity to comment on the draft Basic Assessment.
- No stakeholder or public meetings are being held as no significant issues are anticipated and due to association of this proposed project with the larger Zuurwater PV project for which public meetings were held during the course of 2013.

Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E2**. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
This is the draft BA Report. No comments have been received regarding this project to date. This table is to be completed on completion of the draft BA comment period.	This is the draft BA Report. No comments have been received regarding this project to date. This table is to be completed on completion of the draft BA comment period.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as **Appendix E3.**

No comments have been received regarding this project to date. All comments received during the public review period will be included within a Comments and Responses Report within the Final BAR.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

- BirdLife South Africa
- Department of Agriculture, Forestry & Fisheries
- Department of Water and Sanitation
- Department of Energy
- Department of Mineral Resources
- Department of Rural Development and Land Reform
- Department of Science and Technology
- Northern Cape Department of Agriculture, Land Reform and Rural Development
- Northern Cape Department of Environment and Nature Conservation
- Northern Cape Department of Roads and Public Works
- Northern Cape Provincial Heritage Resources Agency
- Namakwa District Municipality
- Khai Ma Local Municipality
- South African Civil Aviation Authority
- South African Heritage Resources Agency (SAHRA)
- Square Kilometre Array (SKA): South Africa
- Transnet
- Eskom

Include proof that the Authorities and Organs of State received written notification of the proposed activities as **Appendix E4**.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State. Refer to **Appendix E4**.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs is included as **Appendix E5**.

Copies of any correspondence and minutes of any meetings held must be included in **Appendix E6**.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase and decommissioning phases of the proposed power line is provided in the table overleaf.

Activity	Impact summary	Significance	Proposed mitigation
ALTERNATIVE 1: PREFERRED ROUTE DUE TO ITS ALIGNMENT WITH EXISTING AND AUTHORISED POWER LINE ROUTES AND EXISTING ACCESS ROAD			
CONSTRUCTION PHASE			
ECOLOGICAL IMPACTS			
Impacts on vegetation and protected plant species due to construction of the overhead power line	***Direct impacts:*** » Impacts on vegetation and protected plant species would occur due to vegetation clearing associated with the construction of the pylons and laydown areas	Medium - Low (with mitigation)	» Power line should be situated within a common corridor with other linear infrastructure. » Pylon locations should avoid sensitive areas such as dunes and washes. » A preconstruction walk-through of the final power line route should be undertaken. » Sensitive floral species should be identified and their positions recorded. Power line tower positions should be planned to avoid these as far as possible. Permits should be obtained if species cannot be avoided. » Temporary lay-down areas should be located within the servitude area, within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use. » Construction activities should be restricted to the power line servitude.
	» Impacts on vegetation and protected plant species due to clearing activities for access roads	Low	» Existing access road should be used as far as possible and the construction of new roads should be avoided.
	Indirect impacts: Some loss of vegetation and probably some listed and protected species is inevitable and it is unlikely that this can be	Low	Permits should be obtained if protected species cannot be avoided.

Activity	Impact summary	Significance	Proposed mitigation
	avoided.		
	Cumulative impacts: Due to the relatively small footprint of the power line, and the alignment of this route with existing power line infrastructure minimising the requirement for additional access roads, the potential for cumulative impacts on sensitive flora are low and therefore not considered a significant contributor to cumulative impacts.	Low	Permits should be obtained if protected species cannot be avoided.
Faunal impacts due to construction activities	***Direct impacts:*** » Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	Low (with mitigation)	» Preconstruction walk-through of the final power line route should take place to identify any active burrows or other specialised faunal habitat present that should be avoided. » Faunal sweeps should take place before clearing at the pylon positions and any fauna located should form part of a search and rescue and should be relocated to safety. » Site access to be controlled and no unauthorized persons should be allowed onto the site. » The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » No persecution of fauna should be tolerated. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous vegetation.
	Indirect impacts: Noise and disturbance are typical of construction activities and cannot be avoided to a significant degree. The impact is however transient and confined to the construction period.	Low	No mitigation required as no noise receptors are situated nearby.
	Cumulative impacts: During the construction	Low	» Identify location of animal burrows etc.

Activity	Impact summary	Significance	Proposed mitigation
	phase the activity would contribute to cumulative fauna disturbance and disruption in the area.		» Avoid disruption or nuisance to resident fauna as far as possible
HERITAGE IMPACTS			
Impacts on heritage resources	***Direct impacts:*** » During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.	Low	» When the route alignment have been finalised the pylon positions must be subjected to a "walk down".
	Indirect impacts: None		
	Cumulative impacts: None identified for this area.		
PALAEONTOLOGY IMPACTS The impact significance of the proposed power line alternatives, on local fossil heritage resources is considered to be very low and no assessment has been provided by the specialist. Mitigation measures have been included in the EMPr.			
SOIL & AGRICULTURAL IMPACTS Due to the limited footprint of power line alignment on agricultural land, the impact of power lines will be of negligible significance and has not been assessed by the specialist. Mitigation measures have been included in the EMPr.			
VISUAL IMPACTS No significant construction phase impacts have been identified and are mostly aligned with visual impacts expected during the operational phase. Mitigation measures have been included in the EMPr.			

Activity	Impact summary	Significance	Proposed mitigation
OPERATIONAL PHASE			
AVIFAUNAL IMPACTS			
Operation of power line resulting in avifaunal impacts during	***Direct impacts:*** » Collision or electrocution of avifauna. Sensitive or endangered species occurring in	Medium - Low (with mitigation)	» Once a power line route has been negotiated and surveyed within the identified corridor and subjected to detailed design, walk-through surveys should be

Activity	Impact summary	Significance	Proposed mitigation
Operation.	the study area include the Ludwigs Bustard and Kori Bustard.		undertaken by a suitably qualified ornithologist. » The proposed power line should be fitted with bird diverters to make the power line more visible to birds on the recommendation of the ornithologist. » Standard Eskom Bird Perches should be installed on all pole tops in order to provide safe perching substrate for birds well clear of the dangerous hardware below.
Indirect impacts: With mitigation measures there should be no indirect impact on avifauna.			
Cumulative impacts: Cumulative impacts are likely to be low if power lines are consolidated along a common corridor.			

Activity	Impact summary	Significance	Proposed mitigation
DECOMISSIONING PHASE			
ECOLOGICAL IMPACTS			
Faunal Impacts During Decommissioning.	***Direct impacts:*** » Disturbance or persecution of fauna during the decommissioning phase may occur.	Low (with mitigation)	» Site access to be controlled and no unauthorized persons should be allowed onto the site. » The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » No persecution of fauna should be tolerated. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous vegetation.
	Indirect impacts: With avoidance measures there should be no residual impact on fauna.		
	Cumulative impacts: Cumulative impacts at the decommissioning phase are likely to be low.		

Activity	Impact summary	Significance	Proposed mitigation
ALTERNATIVE 2: ROUTE PARALLEL TO THE OLD N14 ROUTE (EXISTING LINEAR DISTURBANCE)			
CONSTRUCTION PHASE			
ECOLOGICAL IMPACTS			
Impacts on vegetation and protected plant species due to construction of the overhead power line	***Direct impacts:*** » Impacts on vegetation and protected plant species would occur due to vegetation clearing associated with the construction of the pylons and laydown areas	Medium to Low (with mitigation)	» Pylon locations should avoid sensitive areas such as washes. » A preconstruction walk-through of the final power line route should be undertaken. » Sensitive floral species should be identified and their positions recorded. » Existing access road should be used as far as possible and the construction of new roads should be avoided. » Temporary lay-down areas should be located within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use.
	» Impacts on vegetation and protected plant species due to clearing activities for access roads	Low	» Existing access road should be used as far as possible and the construction of new roads should be avoided.
	Indirect impacts: Some loss of vegetation and probably some listed and protected species is inevitable and it is unlikely that this can be avoided.		
	Cumulative impacts: Due to the relatively low footprint of the power line, the potential for cumulative impacts on sensitive flora are low and this is not considered a significant contributor to cumulative impacts.		
Faunal impacts due to construction activities	***Direct impacts:*** » Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	Low (with mitigation)	» Preconstruction walk-through of the final power line route should take place to identify any active burrows or other specialised faunal habitat present that should be avoided.

Activity	Impact summary	Significance	Proposed mitigation
			» Faunal sweeps should take place before clearing at the pylon positions and any fauna located should form part of a search and rescue and relocated to safety.
	Indirect impacts: Noise and disturbance are typical of construction activities and cannot be avoided to a significant degree. The impact is however transient and confined to the construction period.		
	Cumulative impacts: During the construction phase the activity would contribute to cumulative fauna disturbance and disruption in the area.		
HERITAGE IMPACTS			
Impacts on heritage resources	***Direct impacts:*** » During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.	Low	» When the route alignment have been finalised the pylon positions must be subjected to a "walk down".
	Indirect impacts: None		
	Cumulative impacts: None identified for this area.		
PALAEONTOLOGY IMPACTS The impact significance of the proposed power line alternatives, on local fossil heritage resources is considered to be very low and no assessment has been provided by the specialist. Mitigation measures have been included in the EMPr.			
SOIL & AGRICULTURAL IMPACTS Due to the limited footprint of power line alignment on agricultural land, the impact of power lines will be of negligible significance and has not been assessed by the specialist. Mitigation measures have been included in the EMPr.			
VISUAL IMPACTS No significant construction phase impacts have been identified and are mostly aligned with visual impacts expected during the operational phase. Mitigation measures have been included in the EMPr.			

Activity	Impact summary	Significance	Proposed mitigation

Activity	Impact summary	Significance	Proposed mitigation
OPERATIONAL PHASE			
AVIFAUNAL IMPACTS			
Operation of power line resulting in avifaunal impacts during Operation.	***Direct impacts:*** » Collision or electrocution of avifauna. Sensitive or endangered species occurring in the study area include the Ludwigs Bustard and Kori Bustard.	Medium - Low (with mitigation)	» Once a power line route has been negotiated and surveyed within the identified corridor and subjected to detailed design, walk-through surveys should be undertaken by a suitably qualified ornithologist. » The proposed power line should be fitted with bird diverters to make the power lines more visible to the birds. » It is recommended that a monopole structure be used with the standard Eskom Bird Perch installed on all pole tops in order to provide safe perching substrate for birds well clear of the dangerous hardware below.
Indirect impacts: With mitigation measures there should be no residual impact on avifauna.			
Cumulative impacts: Cumulative impacts phase are likely to be low if power lines centralised along common corridor.			

Activity	Impact summary	Significance	Proposed mitigation
DECOMISSIONING PHASE			
ECOLOGICAL IMPACTS			
Faunal Impacts During Decommissioning.	***Direct impacts:*** » Disturbance or persecution of fauna during the decommissioning phase may occur.	Low (with mitigation)	» Site access to be controlled and no unauthorized persons should be allowed onto the site. » The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » No persecution of fauna should be tolerated. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous grass.
	Indirect impacts: With avoidance measures there should be no residual impact on fauna.		

Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts: Cumulative impacts at the decommissioning phase are likely to be low.		

Activity	Impact summary	Significance	Proposed mitigation
ALTERNATIVE 3: MOST DIRECT POWER LINE ROUTE			
CONSTRUCTION PHASE			
ECOLOGICAL IMPACTS			
Impacts on vegetation and protected plant species due to construction of the overhead power line	***Direct impacts:*** » Impacts on vegetation and protected plant species would occur due to vegetation clearing associated with the construction of the pylons and laydown areas.	Low (with mitigation)	» Pylon locations should avoid sensitive areas such as washes. » A preconstruction walk-through of the final power line route should be undertaken. » Sensitive floral species should be identified and their positions recorded. » Existing access road should be used as far as possible and the construction of new roads should be avoided. » Temporary lay-down areas should be located within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use.
	» Impacts on vegetation and protected plant species due to clearing activities for access roads	Medium	» Existing access road should be used as far as possible and the construction of new roads should be avoided.
	Indirect impacts: Some loss of vegetation and probably some listed and protected species is inevitable and it is unlikely that this can be avoided.		
	Cumulative impacts: Due to the relatively low footprint of the power line, the potential for cumulative impacts on sensitive flora are low and this is not considered a significant contributor to cumulative impacts.		
Faunal impacts due to construction activities	***Direct impacts:*** » Disturbance, transformation and loss of	Low (with mitigation)	» Preconstruction walk-through of the final power line route should take place to identify any active

Activity	Impact summary	Significance	Proposed mitigation
	habitat will have a negative effect on resident fauna during construction.		burrows or other specialised faunal habitat present that should be avoided. » Faunal sweeps should take place before clearing at the pylon positions and any fauna located should form part of a search and rescue and relocated to safety.
	Indirect impacts: Noise and disturbance are typical of construction activities and cannot be avoided to a significant degree. The impact is however transient and confined to the construction period.		
	Cumulative impacts: During the construction phase the activity would contribute to cumulative fauna disturbance and disruption in the area.		
HERITAGE IMPACTS			
Impacts on heritage resources	***Direct impacts:*** » During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.	Low	» When the route alignment have been finalised the pylon positions must be subjected to a "walk down".
	Indirect impacts: None		
	Cumulative impacts: None identified for this area.		
PALAEONTOLOGY IMPACTS The impact significance of the proposed power line alternatives, on local fossil heritage resources is considered to be very low and no assessment has been provided by the specialist. Mitigation measures have been included in the EMPr.			
SOIL & AGRICULTURAL IMPACTS Due to the limited footprint of power line alignment on agricultural land, the impact of power lines will be of negligible significance and has not been assessed by the specialist. Mitigation measures have been included in the EMPr.			
VISUAL IMPACTS No significant construction phase impacts have been identified and are mostly aligned with visual impacts expected during the operational phase. Mitigation measures have been included in the EMPr.			

Activity	Impact summary	Significance	Proposed mitigation
OPERATIONAL PHASE			
AVIFAUNAL IMPACTS			
Operation of power line resulting in avifaunal impacts during Operation.	***Direct impacts:*** » Collision or electrocution of avifauna. Sensitive or endangered species occurring in the study area include the Ludwigs Bustard and Kori Bustard.	Medium - Low (with mitigation)	» Once a power line route has been negotiated and surveyed within the identified corridor and subjected to detailed design, walk-through surveys should be undertaken by a suitably qualified ornithologist. » The proposed power line should be fitted with bird diverters to make the power lines more visible to the birds. » It is recommended that a monopole structure be used with the standard Eskom Bird Perch installed on all pole tops in order to provide safe perching substrate for birds well clear of the dangerous hardware below.
Indirect impacts: With mitigation measures there should be no residual impact on avifauna.			
Cumulative impacts: Cumulative impacts phase are likely to be low if power lines centralised along common corridor.			

Activity	Impact summary	Significance	Proposed mitigation
DECOMISSIONING PHASE			
ECOLOGICAL IMPACTS			
Faunal Impacts During Decommissioning.	***Direct impacts:*** » Disturbance or persecution of fauna during the decommissioning phase may occur.	Low (with mitigation)	» Site access to be controlled and no unauthorized persons should be allowed onto the site. » The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. » No persecution of fauna should be tolerated. » No open excavations, holes or pits should be left at the site as fauna can fall in and become trapped. » All disturbed areas should be rehabilitated with a cover of indigenous grass.
	Indirect impacts: With avoidance measures there should be no residual impact on fauna.		

Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts: Cumulative impacts at the decommissioning phase are likely to be low.		

NO-GO ALTERNATIVE:			
Activity	**Impact summary**	**Significance**	**Proposed mitigation**
Impacts of not implementing the power line project	***Direct impacts:*** » The proposed power line is directly related into the feasibility of the Aggeneys Solar 1 project solar project, without which the project would be rendered technically flawed.	High (-)	» The Environmental Management Plan should be adhered to ensure that the positive impacts and benefits of the proposed project are maximised.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as **Appendix F**.

COMPARISON OF ALTERNATIVES

» No ecologically sensitive areas (washes and dune ridges) occur along the Alternative 3 alignment. However, it is anticipated that construction of a power line along the Alternative 3 alignment will have a greater ecological impact due to disturbance and vegetation loss as a result of the construction of new access roads required for construction and maintenance purposes. While washes and/or dune ridges occur along the Alternative 1 and 2 routes, these can be avoided through proper siting and spacing of the pylons as the primary mitigation measure. Both Alternatives 1 and 2 are associated with existing access roads which can be used to avoid/minimise the impact associated with road construction and are preferred from this perspective. The difference in the ecological impacts between Alternative 1, 2 and 3 is not considered significant provided the spacing of pylons avoids the dunes on Alternative 1 and that pylons avoid the identified washes on all Alternative alignments considered.

» Alternative 1 presents the lowest impact on sensitive avifauna during the operational phase due to the siting of the consolidation of power line infrastructure within a common corridor (existing and approved power lines) and an associated reduction of potential sources of collision to avifauna. This common corridor is not applicable for alternatives 2 and 3 potentially rendering these two alternatives of higher impact on avifauna than Alternative 1.

» Based on the above, Alternative 1 is the preferred power line alignment as the impacts will be lower due to the common power line alignment and the existing access road thereby reducing the potential occurrence of edge effects and impacts on ecology.

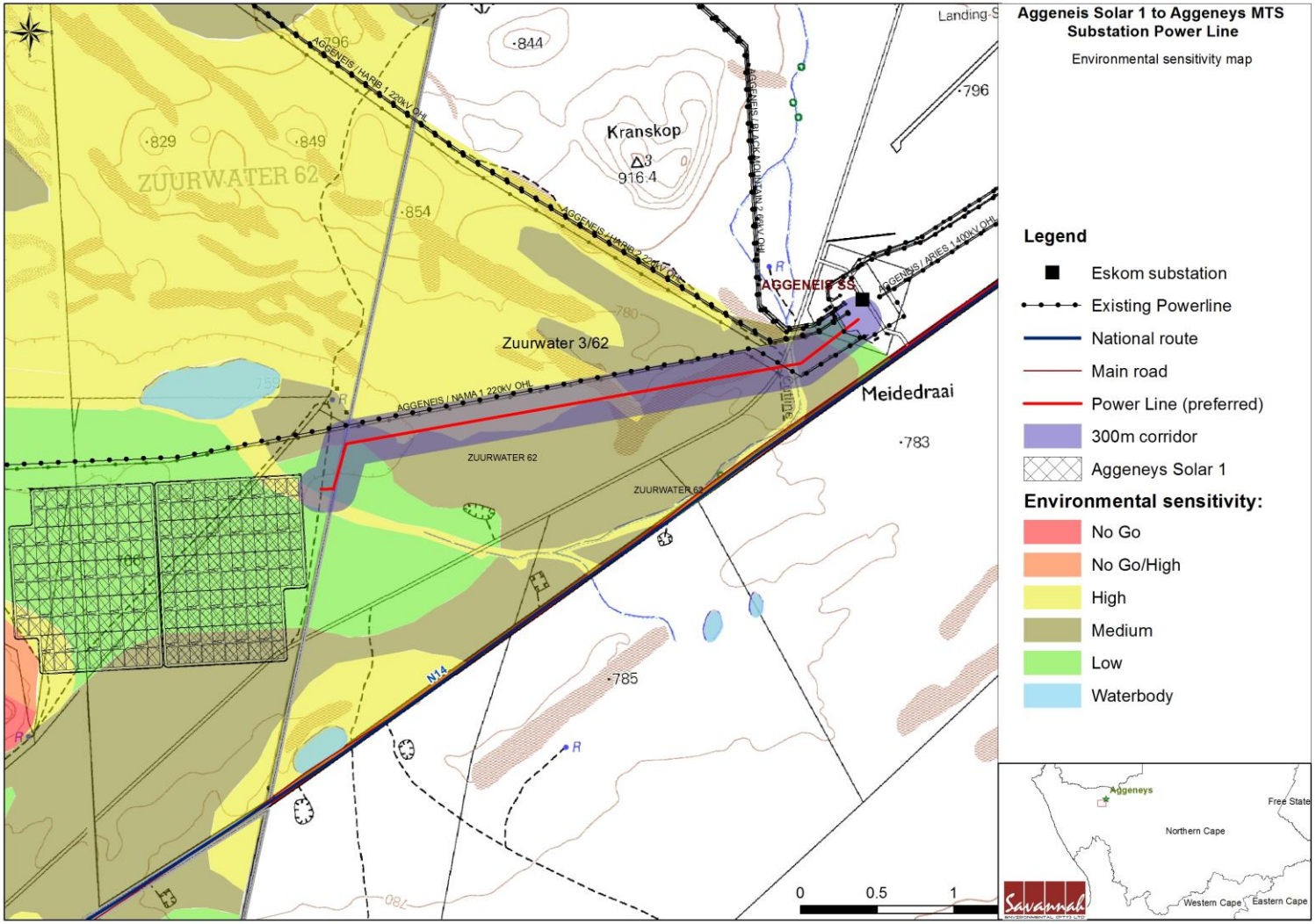

Figure 8: Environmental Sensitivity Map indicating the three power line alternatives between the Aggeneys Solar 1 energy facility and the Aggeneis MTS Substation as an extension of the sensitivity map for the larger Zuurwater PV projects study area

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative 1 (preferred alternative)

This section provides a summary of the environmental assessment and conclusions drawn for the proposed power line from the authorised Aggeneys SolarAggeneys Solar 1 energy facility to the Eskom Aggeneis MTS Substation. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process (and from previous studies in the area) and presents an informed conclusion regarding the environmental impacts associated with the proposed power line. The following conclusions can be drawn from the specialist studies undertaken within this Basic Assessment:

Ecology: The overall impact on ecological processes and functioning as a result of the construction and operation of the proposed power line is likely to be of low significance due to its alignment (preferred option) with the existing Aggeneis – Nama 220kV power line as well as the authorised power line routes for the Zuurwater PV Projects (Phases 1 – 4). The spacing of pylons for all power line corridor alternatives should span the sensitive dunes located along the alignments to reduce the cumulative impacts. The intermittent occurrence of *Hoodia gordonii* does not present any significant requirement in terms of permitting for the removal of endangered plant species. Potential negative impacts on the ecological environment would be localised loss of plant cover and possible associated soil degradation (wind erosion) as a result of construction of the power line, possible introduction of alien invasive plants and a long-term (more than 8 months) low or absent vegetation cover on construction access points/tracks after construction.

The preferred alignment (Alternative 1) will have an overall lower impact on biodiversity due to the positioning of power lines within the common corridor and the reduction of edge effects not characteristic to the other power line alternatives.

Avifauna: The proposed construction of the proposed power line may present collision and electrocution threats to endangered birds (i.e. relatively slow, heavy flying species). Based on the length of the power line and the fact that the preferred option would be situated parallel to the existing and authorised power lines (resulting in a reduction of edge effects), as well as the recommended use of bird diverters, the impact on avifauna is likely to be lower on the local avifauna, thereby reducing this

impact to acceptable levels.

Agriculture: The proposed activity will have a negligible impact on agriculture due to the arid conditions and the alignment with existing linear infrastructure. The preferred alignment will have a lower impact on grazing activities due to the positioning of power lines within a central corridor, thereby reducing edge effects.

Heritage: The impacts to heritage resources by the proposed power line are considered to be of low significance due to the very sparse to zero heritage traces found in the vicinity of the proposed power line based on previous studies.

Visual: The visual impact will be negligible due to the proposed alignment with the existing and authorised power lines (preferred alignment).

Cumulative Impacts: Should all five Zuurwater PV projects be developed, up to five new power lines will potentially be constructed within a common corridor shared with the existing Aggeneis – Nama 220kV power line (total of six power lines). Based on the findings of current and past studies undertaken, in terms of environmental constraints and opportunities identified through the various EIA and Basic Assessment processes, no environmental fatal flaws were identified to be associated with the solar projects or the associated power lines. The alignment of the power line within a common corridor containing the existing Aggeneis – Nama 220kV power line as well as the authorised power line routes for the Zuurwater PV Projects (Phases 1 – 4) (i.e. the preferred alternative) will serve to reduce the overall environmental impact and edge effects which would come from routing the power line along the other alternatives considered.

The significance levels of the majority of identified negative impacts for all alternatives investigated can generally be reduced to acceptable levels by implementing the recommended mitigation measures. From the findings of this Basic Assessment, it is concluded that the preferred alternative (Alternative 1) would have the lowest environmental impact due to the consolidation of power line infrastructure. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

Therefore, it is recommended that the project should be authorised with Alternative 1 being the preferred corridor for the power line. A number of issues requiring mitigation have been highlighted in the impact assessment (Appendix F). In response to these potential environmental impacts, environmental specifications for the management of these issues / impacts are detailed within the draft Environmental Management Programme (EMPr) included within Appendix G.

No Go Alternative (Compulsory)

Also referred to as the 'Do nothing' option, this refers to PV Africa Development not constructing the proposed power line. In this scenario the potential positive and negative environmental and social impacts as described in this Basic Assessment Report will not occur and the status quo will be maintained.

Should the project not proceed, the land use of the preferred alignment will change regardless, due to the construction of the power lines associated with the authorised Zuurwater PV project (Phase 1 – 4). It is noted that the use of this land which the proposed power line will cross is limited from an agricultural and land-use perspective, as it is situated directly adjacent to existing linear disturbances and used for mining purposes.

Should the project not proceed, the authorised Aggeneys Solar1 project will not be connected to the electricity grid which would result in a lost opportunity in terms of the contribution of renewable energy rom this facility to the energy mix for the country. The proposed power line is directly related into the feasibility of this solar project, without which the project would be rendered technically flawed. As a result the potential local and regional socio-economic and environmental benefits expected to be associated with the proposed solar project would not be realised. These include:

» **Increased energy security:** The current electricity crisis in South Africa highlights the significant role that renewable energy can play in terms of power supplementation. In addition, given that renewables can often be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses.

» **Exploitation of South Africa's significant renewable energy resource:** At present, valuable national resources including biomass by-products, solar radiation and wind power remain largely unexploited. The use of these energy flows will strengthen energy security through the development of a diverse energy portfolio.

The no-development option will therefore not be beneficial to the landowner or the broader community.

The 'Do nothing' alternative is, therefore, not a preferred alternative.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	**YES✓**

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

There are no insurmountable environmental or social constraints that prevent the establishment of the proposed Aggeneys Solar 1 to Aggeneis MTS Substation power line.

The construction of the proposed power line should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

Overall recommendation:

» It is recommended that Alternative 1 (preferred route) be selected as the preferred alternative due to its alignment within a common corridor including the existing Aggeneis – Nama 220kV power line as well as the authorised power line routes for the Zuurwater PV Projects (Phases 1 – 4). The alignment is preferred due to the reduction of edge effects, provided that pylons are spaced so as to span across sensitive features identified along the power line route.

Mitigation - Design, Construction, and Decommissioning Phases:

» Power line pylons must be spaced so as to span across sensitive dune ridges identified along the power line route. No laydown of materials may occur in these areas.
» No power line towers should be placed within the regulated area (being 32m or within the 1:100 year floodline) of the identified washes (poorly defined drainage areas)
» Once a power line route has been negotiated and surveyed within the identified

corridor and subjected to detailed design, walk-through surveys should be undertaken by a suitably qualified ecologist, heritage specialist and ornithologist to identify sensitive areas in proximity of tower positions. Recommendations from these walk through surveys should be included within the EMPr for the project.

» Identification of areas of high erosion risk (dunes and washes) should be undertaken for the final siting of power line towers. Only special works to be undertaken in these areas to be monitored by the ECO and Engineer's representative (ER).
» An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period.
» Sensitive floral species (identified as *Hoodia gordonii)* should be avoided by the proposed infrastructure or requisite biodiversity permits for the removal and relocation applied for.
» The proposed power line should be fitted with bird diverters to make the power lines more visible to the birds based on the recommendations of an ornithological walkthrough survey.
» Eskom has guidelines and standards for the construction of bird friendly pole and pylon structures. These should be adhered to. Only a bird friendly pole structure should be used.
» If concentrations of archaeological heritage material, human remains or fossil material are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken.
» Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site. Any new access roads required to be carefully planned and constructed to minimise the impacted area and prevent unnecessary degradation of soil.
» Plan the placement of lay-down areas and any potential temporary construction camps within the servitude and in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.
» During construction, activities should be restricted to the power line servitude. Unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
» An on-going monitoring programme should be established to detect, quantify and eradicate any alien species.
» Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.
» Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).
» Rehabilitate all disturbed areas, construction areas, roads, slopes etc. immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.
» Abbreviating maintenance times, scheduling activities in relation to avian breeding

and/or movement schedules and lowering levels of associated noise.

» Social benefits in terms of training, skills development and the use of local labour should thus be aspired to. These skills can be transferable to other employment sectors and would result in further sustainable benefits.
» The Local Municipality and community representatives and affected and neighbouring property owners should be kept informed of the progress, decisions taken with regards to the development and construction schedules.
» Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust pollution becomes apparent).
» Rehabilitate all adjacent or peripheral disturbed areas, laydown areas, access roads, etc. immediately after the completion of construction works not lost to the final development footprint in terms of the re-vegetation and habitat rehabilitation plan included in the EMPr.
» Roads must be maintained to forego erosion and to suppress dust, and rehabilitated areas must be monitored for rehabilitation failure. Remedial actions must be implemented as a when required.

Mitigation - Operation Phase:

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented:

» Maintain the general appearance of the power line servitude as a whole, including the internal roads, servitudes and the ancillary buildings.
» Maintain roads to forego erosion and to suppress dust.
» Monitor rehabilitated areas, and implement remedial action as and when required.
» Restrict maintenance activities to the servitude.
» Minimise impacts on natural vegetation through clearing and trimming only that necessary for safe operation of the power line.

Is an EMPr attached? **YES✓**

The EMPr must be attached as **Appendix G.**

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as **Appendix H**.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in **Appendix I**.

Any other information relevant to this application and not previously included must be attached in **Appendix J**.

_____

NAME OF EAP

_____ _1 December 2014_____

SIGNATURE OF EAP DATE

SECTION F: APPENDICES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J:CVs