APPENDIX C3

BACKGROUND INFORMATION DOCUMENT

BACKGROUND INFORMATION DOCUMENT (BID)

December 2022

BASIC ASSESSMENT AND PUBLIC PARTICIPATION PROCESS

PROPOSED DEVELOPMENT OF THE LIMESTONE PV1 SOLAR ENERGY FACILITY, LIMESTONE PV2 SOLAR ENERGY FACILITIES AND THE ORYX WIND ENERGY FACILITY, NORTHERN CAPE PROVINCE

AGV Projects (Pty) Ltd proposes the development of a cluster of renewable energy facilities and associated infrastructure near the town of Danielskuil in the Kgatelopele Local Municipality, Tsantsabane Local Municipality and the ZF Mgcawu District Municipality, Northern Cape Province. The cluster of renewable energy facilities consists of a single 360MW Wind Energy Facility (Oryx Wind Energy Facility), and two Solar PV Energy Facilities of up to 150MWp each (Limestone PV1 and Limestone PV2). The grid connection infrastructure for these proposed facilities is still to be confirmed in consultation with Eskom. Each renewable energy facility will be constructed as a separate stand-alone project and therefore, separate Scoping and Environmental Impact Assessment (S&EIA) processes will be undertaken for each of the renewable energy facilities.

AIM OF THIS BACKGROUND INFORMATION DOCUMENT

This document aims to provide you, as an Interested and/ or Affected Party (I&AP), with:

» An overview of the renewable energy facilities which form part of the renewable energy cluster.
» An overview of the Scoping and Environmental Impact Assessment (EIA) processes and specialist studies being undertaken to assess the renewable energy facilities.
» Details of how you can become involved in the S&EIA processes, receive information or raise comments that may concern and/or interest you.

OVERVIEW OF THE PROJECTS

The projects are proposed in response to the identified objectives of the national and provincial government, and local and district municipalities to develop renewable energy facilities for power generation purposes. The developer intends to submit a bid in terms of a regulated power purchase procurement process (e.g., REIPPPP) to evacuate the generated power into the national grid or obtain a commercial PPA (Power Purchase Agreement). This will aid in the diversification and stabilisation of the country's electricity supply, in line with the objectives of the Integrated Resource Plan (IRP), with the projects set to inject up to 560MW into the national grid.

A project site of 1842 ha and two preferred development areas with an extent of 300–400ha each has been identified by AGV Projects (Pty) Ltd as technically suitable areas for the development of the Limestone PV1 & PV2 Solar Energy Facilities. A preferred project focus area and development area is still to be determined by AGV Projects (Pty) Ltd as a technically suitable area for the development of the Oryx Wind Energy Facility. The project sites for the Limestone PV1, Limestone PV2 and Oryx Wind Energy Facilities can be found in Figure 1. The layout and project capacity will be confirmed as the EIA process proceeds and environmental constraints are identified. The details of the renewable energy projects, including the project names, infrastructure details and properties affected by the proposed facilities are described in the sections below.

WIND ENERGY FACILITY

Project name	Oryx Wind Energy Farm	
Affected properties (i.e., project site)	Parent Farm Number	Farm Portions
	Ouplass 304 Plaas 457 Doornvlei 305 Lemoenkloof 456 Plaas 455	2,3 RE, 2, 4, 5 2 0, 2 RE
Contracted capacity	360MW	
No. of turbines	Up to 60 turbines	
Turbine hub height	Between 100-140m	
Rotor diameter	Between 120-200m	
On-site substation size and capacity	Up to 2x 33kV/132kV onsite substations each having a footprint of 0.5-0.6ha	
Battery Energy Storage System	Footprint of 3-5ha	
Access roads (main and internal)	Site access roads as well as internal distribution roads of 4-6m wide	
Other associated infrastructure	Concrete turbine foundations to support the turbines; 33kV cabling to connect the wind turbines to the onsite substations (either underground or overhead); inverters and transformers; temporary laydown areas; Temporary concrete batching plant; crane hardstand areas; construction compounds; Cabling from onsite substations to the collector substation; Electrical and auxiliary equipment to support the function of the substation, including substation yard, control buildings, fences, etc; Camera surveillance; internet connection Stormwater management infrastructure; site offices and maintenance buildings including workshop and storage area as well as parking for staff and visitors.	

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SOLAR PV FACILITIES

Project name	Limestone PV1 Solar PV Facility	Limestone PV2 Solar PV Facility
Affected properties (i.e., project site)	Portion 4 of the Farm Engeland 300	Portion 4 of the Farm Engeland 300
Contracted capacity	Between 75MWp and 150MWp	Between 75MWp and 150MWp
Technology	» Solar Photovoltaic » PV modules mounted on either a single axis tracking & fixed structure, dependent on optimisation, technology available and cost	» Solar Photovoltaic » PV modules mounted on either a single axis tracking & fixed structure, dependent on optimisation, technology available and cost
On-site substation size and capacity	33/132kV on-site substation with a footprint of 0.5-0.75 ha	33/132kV on-site substation with a footprint of 0.5-0.75 ha
Battery Energy Storage System	» Footprint: 3-5ha » Capacity: 50-150MWac.	» Footprint: 3-5ha » Capacity: 50-150MWac.
Access roads (main and internal)	» Main access road up to 6m wide » Internal distribution roads up to 5m wide	» Main access road up to 6m wide » Internal distribution roads up to 5m wide
Other associated infrastructure	Inverters and transformers; cabling between panels, to be laid underground where practical; Laydown/staging area on-site in front of mounting structures during installation; Temporary store area close to site entrance (Less than 2ha); fence around the project development area with security and access control; 33kV cabling between the project components and the facility substation; Temporary concrete batching facility; Stormwater management infrastructure; and site offices and maintenance buildings; Camera surveillance; internet connection including workshop areas for maintenance and storage as well as parking for staff and visitors.	

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OVERVIEW OF POWER GENERATION TECHNOLOGIES PROPOSED

WIND ENERGY TECHNOLOGY

Wind turbines use the energy from the wind to generate electricity. A wind turbine consists of four large main components:

- The rotor.
- The nacelle.
- The tower.
- The foundation unit.

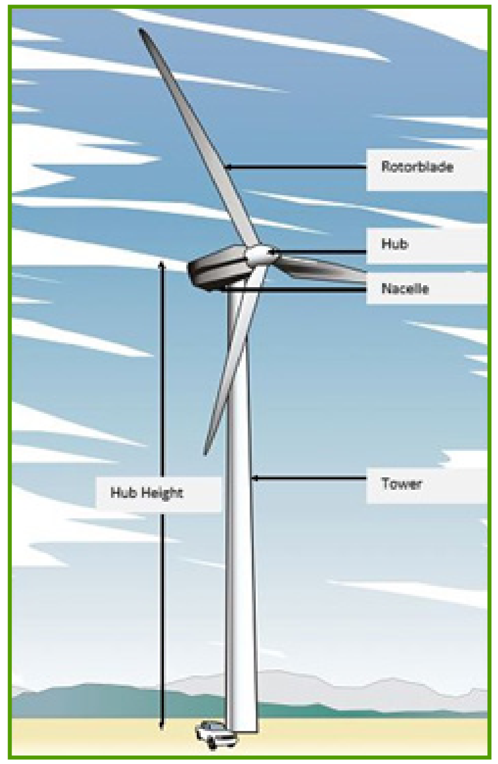

Figure 2: Main components of a wind turbine.

The mechanical power generated by the rotation of the blades is transmitted to the generator within the nacelle via a gearbox and drive train. The wind turns the blades, which in turn spin a shaft which connects to a generator through a gearbox to generate electricity. The use of wind for electricity generation is essentially a non-consumptive use of a natural resource that produces zero greenhouse gas emissions in the process of generating electricity.

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Turbines can operate at varying speeds. The amount of energy a turbine can harness depends on both the wind velocity, hub height, and the length of the rotor blades. The turbines being considered for use at the wind energy facility will be between 4 and 8MW in capacity. The turbines will have a hub height of between 100-140m.

Various wind turbine designs and layouts on the project site are being considered by the developer in order to maximise the generating capacity of the site while minimising environmental impacts. The final facility layout, turbine capacities, and models will be dependent on the turbine models that are available at the time and the suitability of the turbines for the project site in relation to, further studies of the wind regime, terrain, environmental constraints and social sensitivities.

The length of the construction period for the wind farm is estimated to be approximately 24 months. A turbine is designed to operate continuously, with low maintenance for 20 to 25 years.

SOLAR PV TECHNOLOGY

Solar energy facilities use energy from the sun to generate electricity through a process known as the **Photovoltaic Effect**. This effect refers to photons of light colliding with electrons, and therefore placing the electrons into a higher state of energy to create electricity. The solar fields of the PV facilities will comprise the following components:

Photovoltaic Cells:

A photovoltaic (PV) cell is made of silicone that acts as a semiconductor used to produce the photovoltaic effect. PV cells are arranged in multiples/arrays and placed behind a protective glass sheet to form a PV panel. Each PV cell is positively charged on one side and negatively charged on the opposite side, with electrical conductors attached to either side to form a circuit.

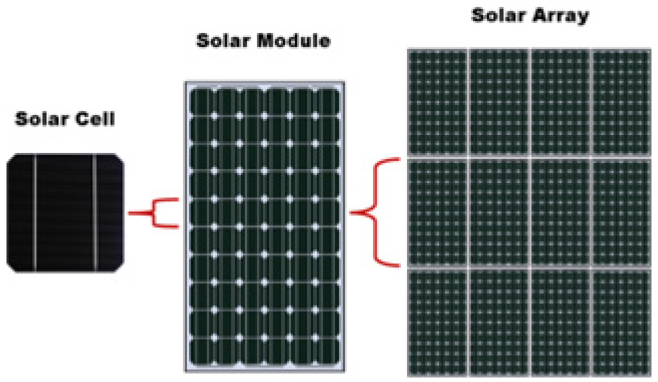

Figure 3: Overview of a PV cell, module and array/panel (Source: pveducation.com).

A solar PV module is made up of individual solar PV cells connected together, whereas a solar PV array is a system made up of a group of individual solar PV modules electrically wired together to form a much larger PV installation. The PV panels will be fixed to support structures to maximise exposure to the sun.

Inverters

Inverters are used to convert the electricity produced by the PV cells from Direct Current (DC) into Alternating Current (AC) to enable the facility to be connected to the national electricity grid. Numerous inverters will be arranged in several arrays to collect and convert power produced by the facilities.

The length of the construction period for the PV facility is estimated to be approximately 12 to 18 months. PV panels are designed to operate continuously for more than 20-25 years, mostly unattended and with low maintenance.

Support Structures

PV panels will be fixed to support structures. PV panels can either utilise fixed / static support structures, or alternatively they can utilise single or double axis tracking support structures. PV panels which utilise fixed / static support structures are set at an angle (fixed-tilt PV system) so as to optimise the amount of solar irradiation received. With fixed / static support structures the angle of the PV panel is dependent on the latitude of the proposed development and may be adjusted to optimise for summer and winter solar radiation characteristics. PV panels which utilise tracking support structures track the movement of the sun throughout the day so as to receive the maximum amount of solar irradiation.

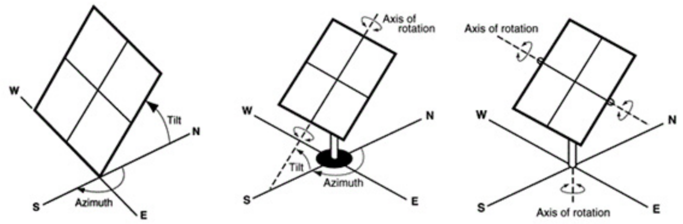

Figure 3: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com).

BATTERY ENERGY STORAGE SYSTEM (BESS)

The need for a BESS stems from the fact that electricity is only produced by the Renewable Energy Facility while the wind or solar resource is available, while the peak demand may not necessarily occur during the daytime or as the resource is available. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will:

- Store and integrate a greater amount of renewable energy from the Wind and Solar PV Facility into the electricity grid.
- Assist with the objective to generate electricity by means of renewable energy to feed into the National Grid.
- Proposed footprint of battery storage area: 3 – 5ha. (Each facility)
- Proposed capacity of battery storage: Limestone PV1 and Limestone PV2 Solar Energy Facility (each) between 50-150 MWac and capacity still to be determined for Oryx Wind Energy Facility
- Proposed technology to be used: Lithium-ion batteries (LFP/NMC or others)

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In accordance with the EIA Regulations, 2014 (as amended) published in terms of Section 24(5) of the National Environmental Management Act (No. 107 of 1998) (NEMA), the applicant requires Environmental Authorisation (EA) from the National Department of Forestry, Fisheries and the Environment (DFFE), in consultation with the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAEARDLR) for the development of the proposed projects. In terms of Section 24(5) of NEMA, the EIA Regulations 2014 (as amended) and Listing Notices (GNR 327, GNR 325, and GNR 324), the applications for EA for the wind farm and solar PV facilities are subject to the completion of Scoping and EIA processes. Each application is required to be supported by comprehensive, independent environmental studies undertaken in accordance with the EIA Regulations, 2014 (as amended).

An EIA is an effective planning and decision-making tool. It allows for potential environmental consequences resulting from a proposed activity to be identified and appropriately managed during the construction, operation, and decommissioning phases of development. It also provides an opportunity for the project applicant to be forewarned of potential environmental issues and allows for the resolution of issue(s) identified and reported on as part of the EIA process, as well as provides the opportunity for dialogue with key stakeholders and Interested and Affected Parties (I&APs).

Savannah Environmental has been appointed as the independent environmental consultant responsible for managing the separate applications for EA and undertaking the supporting EIA process required to identify and assess potential environmental impacts associated with the projects detailed above, as well as propose appropriate mitigation and management measures to be contained within the Environmental Management Programmes (EMPrs).

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WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECTS?

Specialist study	Scope
Biodiversity Impact Assessment	Assessment of impacts on ecology, fauna and flora, and freshwater resources associated with disturbance of vegetation, fauna, habitats and ecological processes within the project area.
Avifauna Impact Assessment	Pre-construction monitoring in terms of the relevant guidelines to inform the assessment of the impact on avifaunal habitats and sensitive species.
Bat Impact Assessment (wind farm only)	Pre-construction monitoring in terms of the relevant guidelines for wind developments to inform the assessment of impacts on sensitive bat species and bat habitats.
Soils and Agricultural Potential Assessment	Determination of land types within the project area, and assessment of the significance of loss of agricultural land due to the project development and impacts relating to soil degradation and/or erosion.
Heritage Impact Assessment (Archaeology and Palaeontology)	Assessment of impacts on heritage resources due to disturbance or destruction of heritage sites and fossils during the construction phase through excavation activities, and assessment of impacts on heritage resources during operation as a result of visual impact.
Visual Impact Assessment	Determination of the presence of visual sensitive receptors in the area and assessment of the impact of the projects on these receptors and the overall aesthetics within the area.
Noise Impact Assessment (wind farm only)	Identification of sensitive noise receptors within the area and assessment of impacts on these receptors from the wind farm during construction and operation.
Social Impact Assessment	Assessment of the positive and negative impacts on the social environment as a result of the construction and operation of the facilities.

Site-specific studies will be undertaken to assess the potential impact of the proposed developments, in order to delineate areas of sensitivity within the affected farm portions, assess impacts associated with the projects and make recommendations regarding avoidance, management and mitigation of impacts. Studies will be informed by available information and detailed field investigations undertaken in accordance with the relevant guidelines and protocols. Once the constraining environmental factors have been determined, the layouts for the proposed facilities can be determined and presented in the EIA reporting.

PUBLIC PARTICIPATION PROCESS

The sharing of information forms the basis of the public participation process and offers I&APs the opportunity to become actively involved in the EIA processes. Comments and inputs from I&APs are encouraged in order to ensure that potential impacts are considered throughout the EIA processes. The public participation process aims to ensure that:

» Information containing all relevant facts in respect of the applications are made available to I&APs for review.
» I&AP participation is facilitated in such a manner that they are provided with a reasonable opportunity to comment on the proposed projects.
» Adequate review periods are provided for I&APs to comment on the findings of the Scoping and EIA Reports.

In order to ensure effective participation, the public participation processes include the following:

» Identifying I&APs, including affected and adjacent landowners and occupiers of land, and relevant Organs of State, and recording details within a database.
» Notifying registered I&APs of the commencement of the EIA processes and distributing the Background Information Document (BID).
» Providing access to registered parties to an online stakeholder engagement platform, which centralises project information and stakeholder input in a single digital platform.
» Providing an opportunity for registered I&APs and stakeholders to engage with the project team.
» Placing site notices at the affected properties and in the study area.
» Placing an advertisement in a local newspaper and using a local radio station (where available) to provide details of the EIA process and the availability of reports for public review and comment.
» Notifying registered I&APs of the release of the Reports for review and comment, meetings to be held, and the closing dates by which comments must be received.
» Providing an opportunity to engage with the project team via appropriate virtual platforms or telephone.

YOUR RESPONSIBILITIES AS AN I&AP

In terms of the EIA Regulations, 2014 (as amended) and the Public Participation Guidelines, 2017, your attention is drawn to your responsibilities as an I&AP:

» To participate in the EIA processes and provide comments on reports, you must register yourself on the I&AP database.
» You are required to disclose any direct business, financial, personal, or other interest that you may have in the approval or refusal of the applications.
» You must ensure that any comments regarding the proposed projects are submitted to the relevant consultant/s within the stipulated timeframes.

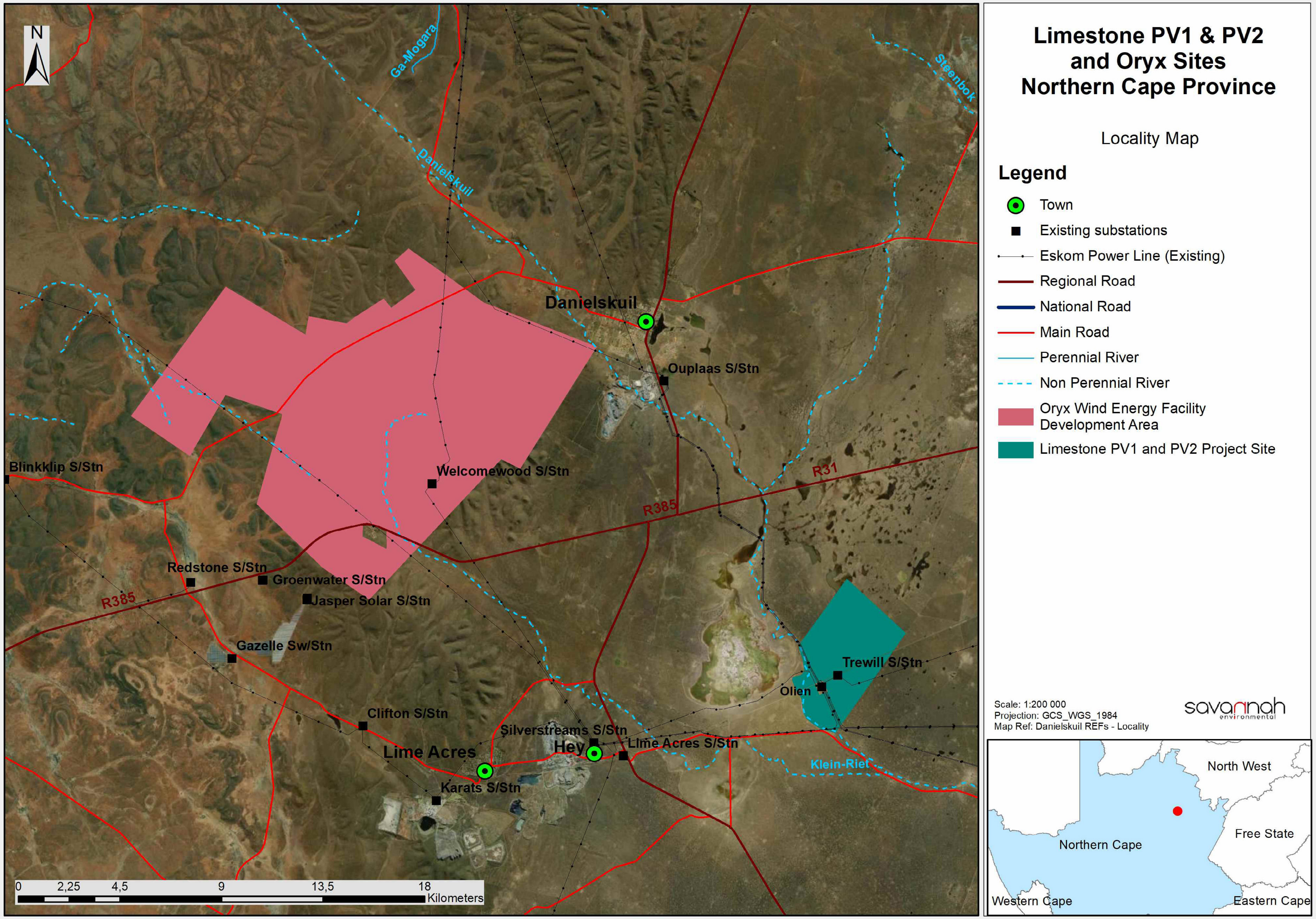
HOW TO BECOME INVOLVED

» By responding by phone, fax, or e-mail to the invitation for your involvement.
» By returning the reply form to the relevant contact person.
» By engaging with the project team during the EIA processes.
» By contacting the public participation and/or environmental consultant with queries or comments.
» By reviewing and commenting on the reports within the stipulated review and comment periods.

If you consider yourself an I&AP for the proposed projects, we urge you to make use of the opportunities created by the public participation process to provide comment, raise issues and concerns which affect and / or interest you, or request further information. Your input forms a key element of the EIA processes.

By completing and submitting the accompanying reply form, you automatically register yourself as an I&AP for the proposed projects, and are ensured that your comments, concerns, or queries raised regarding the projects will be noted. Please note that all comments received will be included in the project documentation. This may include personal information.

Figure 4: Locality map



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COMMENTS AND QUERIES

Direct all comments, queries or responses to:

Savannah Environmental
Molatela Ledwaba
P.O. Box 148, Sunninghill, 2157
Mobile: 060 978 8396
Tel: 011 656 3237
Fax: 086 684 0547
Email: publicprocess@savannahsa.com

To visit the online stakeholder engagement platform and view project documentation, visit www.savannahSA.com

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ENVIRONMENTAL IMPACT ASSESSMENT AND PUBLIC PARTICIPATION PROCESSES

PROPOSED DEVELOPMENT OF THE LIMESTONE PV 1 SOLAR PV, PV2 SOLAR PV ENERGY FACILITIES AND THE ORYX WIND ENERGY FACILITY NEAR DANIELSKUIL, NORTHERN CAPE PROVINCE

(DFFE Ref. No.: To be Issued)

Registration & Comment Form

December 2022

Return completed registration and comment form to ***Molatela Ledwaba*** *of* ***Savannah Environmental***

Phone: *011 656 3237* ***Mobile (incl. 'please call me'):*** *060 978 8396* ***Fax:*** *086 684 0547*

E-mail: *publicprocess@savannahsa.com* ***Postal Address:*** *PO Box 148, Sunninghill, 2157*

Your registration as an interested and/or affected party will be applicable for this project only and your contact details provided are protected by the POPI Act of 2013

Please provide your complete contact details:

Name & Surname:			
Organisation:			
Designation:			
Postal Address:			
Telephone:		Fax:	
Mobile:			
E-mail:			

I would you like to register as an interested and affected party (I&AP) on the following project's database (please tick the relevant box)

Limestone PV1 Facility		Oryx Wind Energy Facility	
Limestone PV2 Facility			

In terms of EIA Regulations, 2014, as amended, Regulation 43(1), you are required to register as an I&AP to receive further correspondence regarding the EIA process for the projects and to disclose any direct business, financial, personal or other interest which you may have in the approval or refusal of the application (add additional pages if necessary)**:**

Please list your comments regarding your project selection above (add additional pages if necessary)**:**

Please provide contact details of any other persons who you regard as a potential interested or affected party:

Name & Surname:	
Postal Address:	
Telephone:	
Mobile:	
E-mail:	

SIEN KEERSY VIR AFRIKAANS

savannah environmental

AGTERGRONDINLIGTINGSDOKUMENT

Desember 2022

BASIESE EVALUERINGS- EN OPENBARE DEELNAMEPROSES

BEOOGDE ONTWIKKELING VAN DIE LIMESTONE FV1-SONKRAGAANLEG, LIMESTONE FV2-SONKRAGAANLEG EN DIE ORYX WINDKRAGAANLEG, NOORD-KAAPPROVINSIE

AGV Projects (Edms.) Bpk. beoog die ontwikkeling van 'n groep hernubare kragaanlegte en verwante infrastruktuur naby die dorp Daniëlskuil in die Kgatelopele Plaaslike Munisipaliteit, Tsantsabane Plaaslike Munisipaliteit en die ZF Mgcawu Distriksmunisipaliteit, Noord-Kaapprovinsie. Die groep hernubare kragaanlegte bestaan uit 'n enkele 360 MW windkragaanleg (Oryx Windkragaanleg) en twee FV-sonkragaanlegte van hoogstens 150 MWp elk (Limestone FV1 en Limestone FV2). Die roosterkonneksie-infrastruktuur vir hierdie beoogde aanlegte moet nog in oorleg met Eskom bevestig word. Elke hernubare kragaanleg sal as 'n afsonderlike losstaande projek opgerig word, gevolglik sal aparte Bestekopname- en Omgewingsimpakevalueringsprosesse (B&OIE's) vir elk van die hernubare kragaanlegte onderneem word.

DOEL VAN HIERDIE AGTERGRONDINLIGTINGSDOKUMENT

Hierdie dokument stel dit ten doel om u, as 'n belangstellende en/of geaffekteerde party (B&GP), te voorsien van:

- 'n oorsig van die hernubare kragaanlegte wat deel vorm van die hernubare groep kragaanlegte;
- 'n oorsig van die Bestekopname- en Omgewingsimpakevalueringsprosesse (B&OIE's) en spesialisstudies wat onderneem word om die hernubare kragaanlegte te evalueer;
- besonderhede oor hoe u by die B&OIE-prosesse betrokke kan raak, inligting kan ontvang of kommentaar kan opper wat u dalk kan raak en/of vir u van belang kan wees.

OORSIG VAN DIE PROJEKTE

Die projekte word beoog in antwoord op die nasionale en provinsiale regering en plaaslike en distriksmunisipaliteite se geïdentifiseerde doelwitte om hernubare kragaanlegte vir kragopwekkingsdoeleindes te ontwikkel. Die ontwikkelaar is van voorneme om 'n bod ingevolge 'n gereguleerde kragaankoopproses (bv. REIPPPP) in te dien om die opgewekte krag na die nasionale kragnet toe te ontruim of om 'n kommersiële KKO (Kragkoopooreenkoms) te beklink. Dit sal bydra tot die diversifisering en stabilisering van die land se kragvoorsiening, in ooreenstemming met die doelwitte van die Geïntegreerde Hulpbronplan (GHP), met die projekte wat hoogstens 560 MW by die nasionale kragnet sal kan invoer.

'n Projekterrein van 1 842 ha en twee ontwikkelingsgebiede van voorkeur, met 'n omvang van 300–400 ha elk, is deur AGV Projects (Edms.) Bpk. as tegnies geskikte gebiede vir die ontwikkeling van die Limestone FV1- & FV2-sonkragaanlegte geïdentifiseer. 'n Projekfokusgebied en ontwikkelingsgebied van voorkeur moet nog deur AGV Projects (Edms.) Bpk. as 'n tegnies geskikte gebied vir die ontwikkeling van die Oryx Windkragaanleg bepaal word. Die projekterreine vir die Limestone FV1, Limestone FV2 en die Oryx Windkragaanleg verskyn in Figuur 1. Die projek se uitleg en vermoë sal bevestig word namate die OIE-proses vorder en omgewingsbeperkings geïdentifiseer word. Die besonderhede van die hernubare kragprojekte, met insluiting van die projekname, infrastruktuurbesonderhede en eiendomme wat deur die beoogde aanlegte geraak word, word in die afdelings hieronder beskryf.

WINDKRAGAANLEG

Projeknaam	Oryx Windkragplaas	
Geaffekteerde eiendomme (d.i. projekterrein)	Moederplaasnommer	Plaasgedeeltes
	Ouplaas 304 Plaas 457 Doornvlei 305 Lemoenkloof 456 Plaas 455	2,3 Restant, 2, 4, 5 2 0, 2 Restant
Gekontrakteerde vermoë	360 MW	
Aantal turbines	Hoogstens 60 turbines	
Turbine se naafhoogte	Tussen 100–140 m	
Rotordeursnee	Tussen 120–200 m	
Grootte en vermoë van interne substasie	Hoogstens 2 x 33 kV/132 kV interne substasies elk met 'n voetspoor van 0,5-0,6 ha	
Batterykragbergingstelsel	Voetspoor van 3–5 ha	
Toegangspaaie (hoof- en interne paaie)	Terreintoegangspaaie, asook interne verspreidingspaaie met 'n breedte van 4–6 m	
Ander verwante infrastruktuur	Betonblad turbinefondasies om die turbines te dra; 33 kV kabels om die windturbines met die interne substasies te verbind (hetsy ondergronds of oorhoofs); wisselrigters en transformators; tydelike stapelwerfgebiede; tydelike betonlotaanleg; hardebladgebiede vir hyskrane; verblyf vir konstruksiewerkers; kabels tussen die interne substasies en die kollektorsubstasie; elektriese en hulptoerusting om die substasie se funksionering te steun, met insluiting van 'n substasieperseel, beheergeboue, heinings, ens.; kameramonitering; internetverbinding; stormwaterbestuursinfrastruktuur; terreinkantore en instandhouds-geboue, met insluiting van 'n werkswinkel- en bergingsgebied, asook parkering vir personeel en besoekers.	

Kopiereg: Savannah Environmental (Edms.) Bpk.
Kopiereg: Savannah Environmental (Edms.) Bpk.

FV-SONKRAGAANLEGTE

Projeknaam	Limestone FV1-sonkragaanleg	Limestone FV2-sonkragaanleg
Geaffekteerde eiendomme (d.i. projekterrein)	Gedeelte 4 van die plaas Engeland 300	Gedeelte 4 van die plaas Engeland 300
Gekontrakteerde vermoë	Tussen 75 MWp en 150 MWp	Tussen 75 MWp en 150 MWp
Tegnologie	» Fotovoltaïese sonkrag » FV-modules wat hetsy op 'n enkelasnaspoorder- of vaste struktuur, gemonteer is, afhangende van optimering, beskikbare tegnologie en koste	» Fotovoltaïese sonkrag » FV-modules wat hetsy op 'n enkelasnaspoorder- of vaste struktuur, gemonteer is, afhangende van optimering, beskikbare tegnologie en koste
Grootte en vermoë van interne substasie	33/132 kV interne substasie met 'n voetspoor van 0,5–0,75 ha	33/132 kV interne substasie met 'n voetspoor van 0,5–0,75 ha
Batterykragbergingstelsel	» Voetspoor: 3–5 ha » Vermoë: 50–150 MWac	» Voetspoor: 3–5 ha » Vermoë: 50–150 MWac
Toegangspaaie (hoof- en interne paaie)	» Hooftoegangspad met 'n breedte van hoogstens 6 m » Interne verspreidingspaaie met 'n breedte van hoogstens 5 m	» Hooftoegangspad met 'n breedte van hoogstens 6 m » Interne verspreidingspaaie met 'n breedte van hoogstens 5 m
Ander verwante infrastruktuur	Wisselrigters en transformators; kabels tussen panele wat ondergronds gelê moet word waar dit prakties moontlik is; interne stapel-/steierwerfgebied voor monteerstrukture tydens installasie; tydelike bergingsgebied naby die terrein se ingang (kleiner as 2 ha); 'n heining om die projekontwikkelingsgebied met sekerheid en toegangsbeheer; 33 kV kabels tussen projekkomponente en die aanlegsubstasie; tydelike betonlotaanleg; stormwater-bestuursinfrastruktuur; terreinkantore en instandhoudsgeboue; kameramonitering en internetverbinding; werkswinkelgebiede vir instandhouding en berging, asook parkering vir personeel en besoekers	

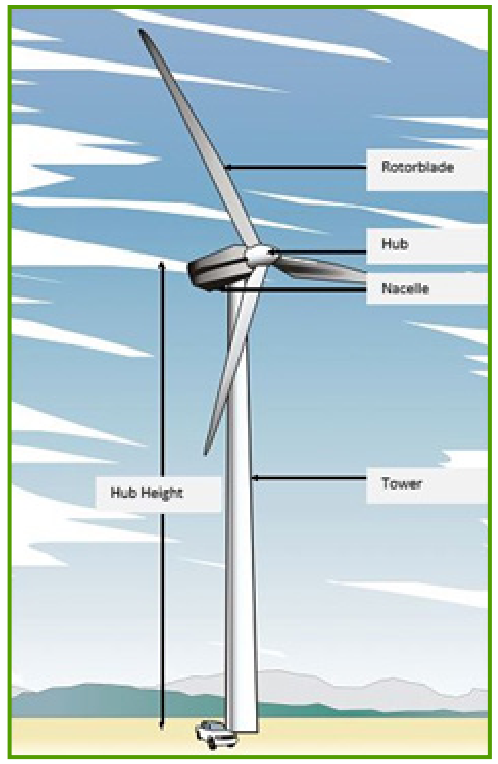
OORSIG VAN BEOOGDE KRAGOPWEKKINGSTEGNOLOGIEË

WINDKRAGTEGNOLOGIE

Windturbines maak gebruik van windkrag om elektrisiteit op te wek.

'n Windturbine bestaan uit vier groot primêre komponente, naamlik die:

- rotor;
- nacelle (turbinehuis);
- toring; en
- fondasie-eenheid.



Figuur 2: Primêre komponente van 'n windturbine

Die meganiese krag wat deur die rotasie van die skroewe opgewek word, word via 'n ratkas en dryfwerk aan die generator binne-in die nacelle (turbinehuis) oorgedra. Die wind draai die skroewe wat op hul beurt 'n as draai wat deur 'n ratkas aan 'n generator gekoppel is om elektrisiteit op te wek. Die benutting van wind vir die opwekking van elektrisiteit is in wese 'n nie-verbruikende gebruik van 'n natuurlike hulpbron wat geen kweekhuisgasse tydens die proses van die opwekking van elektrisiteit vrystel nie.

Turbines kan teen verskillende snelhede funksioneer. Die hoeveelheid energie wat 'n turbine kan inspan, hang af van die windsnelheid, naafhoogte sowel as die lengte van die rotorskroewe. Die turbines wat vir gebruik by die windkragaanleg oorweeg word, sal tussen 4 en 8 MW in vermoë wees. Die turbines sal oor 'n naafhoogte van tussen 100–140 m beskik.

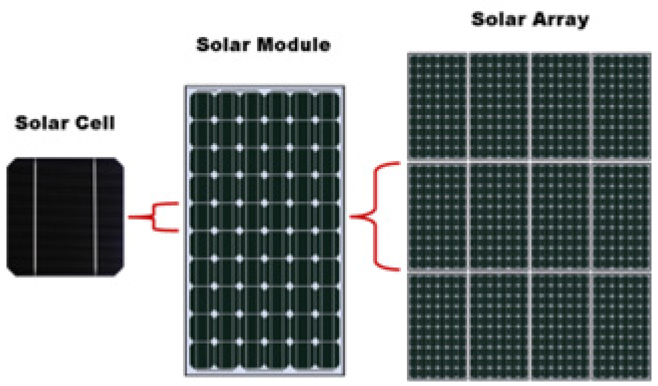
Die projekontwikkelaar oorweeg verskeie windturbine-ontwerpe en -uitlegte op die projekterrein om die opwekkingsvermoë van die terrein te maksimaliseer terwyl die omgewingsimpakte geminimaliseer word. Die finale uitleg van die aanleg, turbinevermoëns en -modelle sal afhang van die turbinemodelle wat op die tyd beskikbaar is en die geskiktheid van die turbines vir die projekterrein ten opsigte van verdere studies van die windregime, terrein en omgewingsbeperkings en maatskaplik sensitiewe aspekte.

Die tydsduur van die konstruksietydperk vir die windplaas word op sowat 24 maande beraam. 'n Turbine is ontwerp om ononderbroke en met min instandhouding vir 20 tot 25 jaar in bedryf te staan.

FV-SONKRAGTEGNOLOGIE

Sonkragaanlegte gebruik die son se energie om elektrisiteit op te wek deur 'n proses wat as die **Fotovoltaïese Effek** bekend staan. Hierdie effek verwys na ligfotone wat met elektrone bots, wat die elektrone gevolglik in 'n hoër staat van energie plaas om elektrisiteit voort te bring. Die FV-aanlegte se sonkragvelde sal uit die volgende komponente bestaan:

Fotovoltaïese Selle:
'n Fotovoltaïese (FV) sel word van silikon gemaak wat as halfgeleier optree en gebruik word om die fotovoltaïese effek voort te bring. FV-selle word in veelvoude/reekse gerangskik en agter 'n beskermende glaspaneel geplaas om 'n FV-paneel te vorm. Elke FV-sel se een kant is positief en die teenoorgestelde kant negatief gelaai, met elektriese geleiers wat aan beide kante aangebring is om 'n stroombaan te vorm. Hierdie stroombaan vang die vrygestelde elektrone vas in die vorm van 'n elektriese stroom (d.i. gelykstroom (GS)).



Figuur 3: Oorsig van 'n FV-sel, -module en -reeks/-paneel (Bron: pveducation.com)

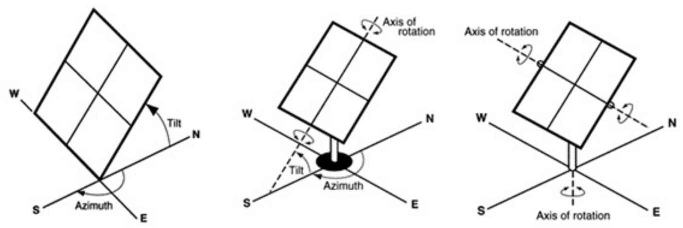
'n FV-sonkragmodule bestaan uit individuele FV-sonkragselle wat met mekaar verbind is, terwyl 'n FV-sonkragreeks 'n stelsel is wat bestaan uit 'n groep individuele FV-sonkragmodules wat elektries saam bedraad is om 'n veel groter FV-installasie te vorm. Die FV-panele sal op steunstrukture aangebring word om blootstelling aan die son te maksimaliseer.

Wisselrigters
Wisselrigters word gebruik om die elektrisiteit wat deur die FV-selle voortgebring word, van gelykstroom (GS) na wisselstroom (WS) om te sit sodat die aanleg met die nasionale kragnet verbind kan word. Verskeie wisselrigters sal in verskeie reekse gerangskik word om krag wat deur die aanlegte opgewek word, te versamel en om te sit.

Na raming sal die konstruksietydperk vir die FV-aanlegte sowat 12 tot 18 maande duur. FV-panele is ontwerp om vir meer as 20-25 jaar ononderbroke, meestal onbeman en met min instandhouding in bedryf te staan.

Steunstrukture
FV-panele sal op steunstrukture aangebring word. FV-panele kan hetsy vaste/stilstaande steunstrukture gebruik, of andersins kan hulle van enkel- of dubbelas naspoorsteunstrukture gebruik maak.

FV-panele wat vaste/stilstaande steunstrukture gebruik, word teen 'n hoek gestel (vaste-kanteling FV-stelsel) ten einde die hoeveelheid sonbestraling wat ontvang word, ten volle te benut. Met vaste/stilstaande steunstrukture, hang die hoek van die FV-paneel af van die breedteligging van die beoogde ontwikkeling en kan verstel word om die kenmerke van somer- en wintersonbestraling ten volle te benut. FV-panele wat naspoorsteunstrukture gebruik, volg die son se beweging regdeur die dag ten einde die maksimum hoeveelheid sonbestraling te ontvang.



Figuur 3: Oorsig van verskillende FV-naspoorstelsels (van links na regs: vastehoek,
enkel- en dubbelasnasporing (bron: pveducation.com)

BATTERYKRAGBERGINGSTELSEL (BESS)

Die behoefte vir 'n BESS spruit voort uit die feit dat elektrisiteit slegs deur die Hernubare Kragaanleg opgewek word terwyl die wind- of sonhulpbron beskikbaar is, terwyl die piekvraag nie noodwendig gedurende die dag sal plaasvind nie. Gevolglik sal die berging van elektrisiteit en die voorsiening daarvan tydens piekvraag beteken dat die aanleg meer doeltreffend en meer betroubaar sal wees en dat die elektrisiteitsvoorsiening meer bestendig sal wees.

Die BESS:
» sal meer hernubare krag van die Wind- en FV-aanleg stoor en by die kragnet integreer;
» sal bydra tot die doelwit om elektrisiteit aan die hand van hernubare kragtegnologie op te wek om by die nasionale kragnet in te voer;
» se batterybergingsgebied sal oor 'n beoogde voetspoor van 3–5 ha (elke aanleg) beskik;
» se batterybergingstelsel se beoogde vermoë is: Limestone FV1- en Limestone FV2-sonkragaanleg (elk) tussen 50–150 MWac en die Oryx Windkragaanleg se vermoë moet nog bepaal word;
» se beoogde tegnologie wat gebruik gaan word: Litium-ioon-batterye (LFP/NMC of ander).

OMGEWINGSIMPAKEVALUERINGSPROSES

In ooreenstemming met die OIE-regulasies, 2014 (soos gewysig), wat ooreenkomstig Artikel 24(5) van die Nasionale Wet op Omgewingsbestuur (Wet 107 van 1998) (NEMA) gepubliseer is, benodig die applikant Omgewingsmagtiging (OM) van die Nasionale Departement van Bosbou, Visserye en die Omgewing, (DBVO), in oorleg met die Noord-Kaapprovinsie se Departement van Landbou, Omgewingsake, Landelike Ontwikkeling en Grondhervorming (DAEARDLR) vir die ontwikkeling van die beoogde projekte. Ingevolge Artikel 24(5) van NEMA, die OIE-regulasies 2014 (soos gewysig) en Lyskennisgewing (Staatskennisgewing R327, R325 en R324), is die aansoeke om OM vir die windplaas en FV-sonkragaanlegte onderhewig aan die voltooiing van Bestekopname- en OIE-prosesse. Elke aansoek moet gerugsteun word deur omvattende, onafhanklike omgewingstudies wat ingevolge die OIE-regulasies, 2014 (soos gewysig) onderneem word.

'n OIE is 'n doeltreffende beplannings- en besluitnemingswerktuig. Dit bring mee dat potensiële omgewingsverwante gevolge wat voortspruit uit 'n beoogde aktiwiteit, geïdentifiseer en na behore tydens die oprigtings-, bedryfs- en uitbedryfstellingsfase van ontwikkeling bestuur word. Dit bied ook 'n geleentheid vir die projekaansoeker om vooraf gewaarsku te wees van potensiële omgewingskwessies en maak voorsiening vir die oplossing van kwessies wat geïdentifiseer en as deel van die OIE-proses oor verslag gedoen is, en bied ook die geleentheid vir dialoog tussen sleutelbelanghebbers en belangstellende en geaffekteerde partye (B&GP's).

Savannah Environmental is aangestel as die onafhanklike omgewingskonsultant wat verantwoordelik is vir die bestuur van die aparte aansoeke om OM en om die stawende OIE-proses te onderneem wat vereis word om alle potensiële omgewingsimpakte wat verband hou met die projekte wat hierbo uiteengesit is, te identifiseer en te evalueer, en om gepaste versagtings- en bestuursmaatreëls aan die hand te doen wat in die Omgewingsbestuursprogramme (OBPr'e) vervat moet word.

WAT IS DIE POTENSIËLE OMGEWINGSIMPAKTE WAT VERBAND HOU MET DIE BEOOGDE PROJEKTE?

Die projekte sal deur onafhanklike omgewingspesialiste geëvalueer word ten einde die potensiaal vir omgewingsimpakte te identifiseer. Spesialisstudies wat as deel van die OIE-prosesse beoog word, sluit die onderstaande in:

Spesialisstudie	Werksbestek
Biodiversiteit-impakevaluering	Evaluering van impakte op ekologie, fauna en flora asook varswaterhulpbronne wat verband hou met versteuring van plantegroei, fauna, habitatte en ekologiese prosesse in die projekgebied.
Avifauna-impakevaluering	Voor-oprigting monitering ingevolge die tersaaklike riglyne om die evaluering van die impak op avifauna se habitat en sensitiewe spesies toe te lig.
Vlermuisimpakevaluering (slegs windplaas)	Voor-oprigting monitering ingevolge die tersaaklike riglyne vir windontwikkelings om die evaluering van impakte op sensitiewe vlermuisspesies en -habitats toe te lig.
Evaluering van Grond- en Landboupotensiaal	Bepaling van grondsoorte in die projekgebied en evaluering van die omvang van die verlies aan landbougrond as gevolg van die projekontwikkeling en impakte wat verband hou met gronddegradasie en/of -erosie.
Erfenisimpakevaluring (Argeologie, en Paleontologie)	Evaluering van impakte op erfenishulpbronne as gevolg van die versteuring of vernietiging van erfenisterreine en fossiele tydens die konstruksiefase deur uitgrawingsaktiwiteite en die evaluering van impakte op erfenishulpbronne tydens bedryf as gevolg van die visuele impak.
Visuele Impakevaluering	Bepaling van die voorkoms van visueel-sensitiewe reseptors in die gebied en die evaluering van die impak van projekte op hierdie reseptors en die algehele estetika in die gebied.
Geraasimpakevaluering (slegs windplaas)	Identifisering van sensitiewe geraasreseptors in die gebied en evaluering van impakte op hierdie reseptors van die windplaas af tydens oprigting en bedryf.
Maatskaplike Impakevaluering	Evaluering van die positiewe en negatiewe impakte op die maatskaplike omgewing as gevolg van die oprigting en bedryf van die aanlegte.

Terreinspesifieke studies sal onderneem word om die potensiële impak van die beoogde ontwikkelings te evalueer om gebiede van sensitiwiteit in die geaffekteerde plaasgedeeltes te delinieer, impakte te evalueer wat verband hou met die projekte en aanbevelings te maak betreffende vermyding, bestuur en versagting van impakte. Studies sal toegelig word deur beskikbare inligting en gedetailleerde veldondersoeke wat ooreenkomstig die tersaaklike riglyne en protokolle onderneem word. Sodra die beperkende omgewingsfaktore bepaal is, kan die uitleg vir die beoogde aanlegte bepaal word en in die OIE se verslagdoening voorgehou word.

OPENBARE DEELNAMEPROSES

Die deel van inligting vorm die grondslag van die openbare deelnameproses en bied B&GP's die geleentheid om aktief by die OIE-prosesse betrokke te raak. Kommentaar en insette van B&GP's word aangemoedig ten einde te verseker dat oorweging aan potensiële impakte regdeur die OIE-prosesse geskenk word.

Die openbare deelnameproses poog om te verseker dat:

» inligting wat al die tersaaklike feite met betrekking tot die aansoeke bevat, aan B&GP's beskikbaar gestel word vir insae;
» deelname deur B&GP's op so 'n wyse gefasiliteer word dat hulle 'n redelike geleentheid gegun word om kommentaar te lewer oor die voorgestelde projekte; en
» voldoende insaetydperke aan B&GP's gebied word om kommentaar te lewer oor die bevindinge van die Bestekopname- en OIE-verslag.

Ten einde doeltreffende deelname te verseker, sluit die openbare deelnameprosesse in:

» Die identifisering van B&GP's, insluitende geaffekteerde en naburige grondeienaars en -bewoners en tersaaklike staatsinstellings en die boekstawing van besonderhede in 'n databasis;
» die verwittiging van geregistreerde B&GP's van die aanvang van die OIE-prosesse en die verspreiding van die Agtergrondinligtingsdokument (AID);
» die voorsiening van toegang aan geregistreerde partye tot 'n aanlyn skakelingsplatform vir belanghebbers, wat projekinligting en insette van belanghebbers in 'n enkele digitale platform sentraliseer;
» om geregistreerde B&GP's en belanghebbers 'n geleentheid te bied om met die projekspan te skakel;
» die plasing van terreinkennisgewings by die geaffekteerde eiendomme en in die studiegebied;
» die plasing van 'n advertensie in 'n plaaslike koerant en die aanwending van 'n plaaslike radiostasie (waar beskikbaar) om besonderhede van die OIE-proses en die beskikbaarheid van verslae vir openbare insae en kommentaar te bied;
» om geregistreerde B&GP's in kennis te stel van die vrystelling van die verslae vir insae en kommentaar, vergaderings wat gehou moet word en die sluitingsdatums waarteen kommentaar ontvang moet word;
» om 'n geleentheid te bied om via gepaste virtuele platforms of telefonies met die projekspan te skakel.

U VERANTWOORDELIKHEDE AS 'N B&GP

Ooreenkomstig die OIE-regulasies, 2014 (soos gewysig) en die Riglyne vir Openbare Deelname, 2017, word u aandag gevestig op u verantwoordelikhede as 'n B&GP:

» Om aan die OIE-prosesse deel te neem en om kommentaar op die verslae te lewer, moet u uself op die B&GP-databasis registreer.
» U móét enige regstreekse sake-, finansiële-, persoonlike- of ander belang wat u dalk in die goedkeuring of weiering van die aansoeke kan hê, bekend maak.
» U moet toesien dat enige kommentaar met betrekking tot die beoogde projek binne die gestipuleerde tydsraamwerke by die tersaaklike konsultant(e) ingedien word.

HOE OM BETROKKE TE RAAK

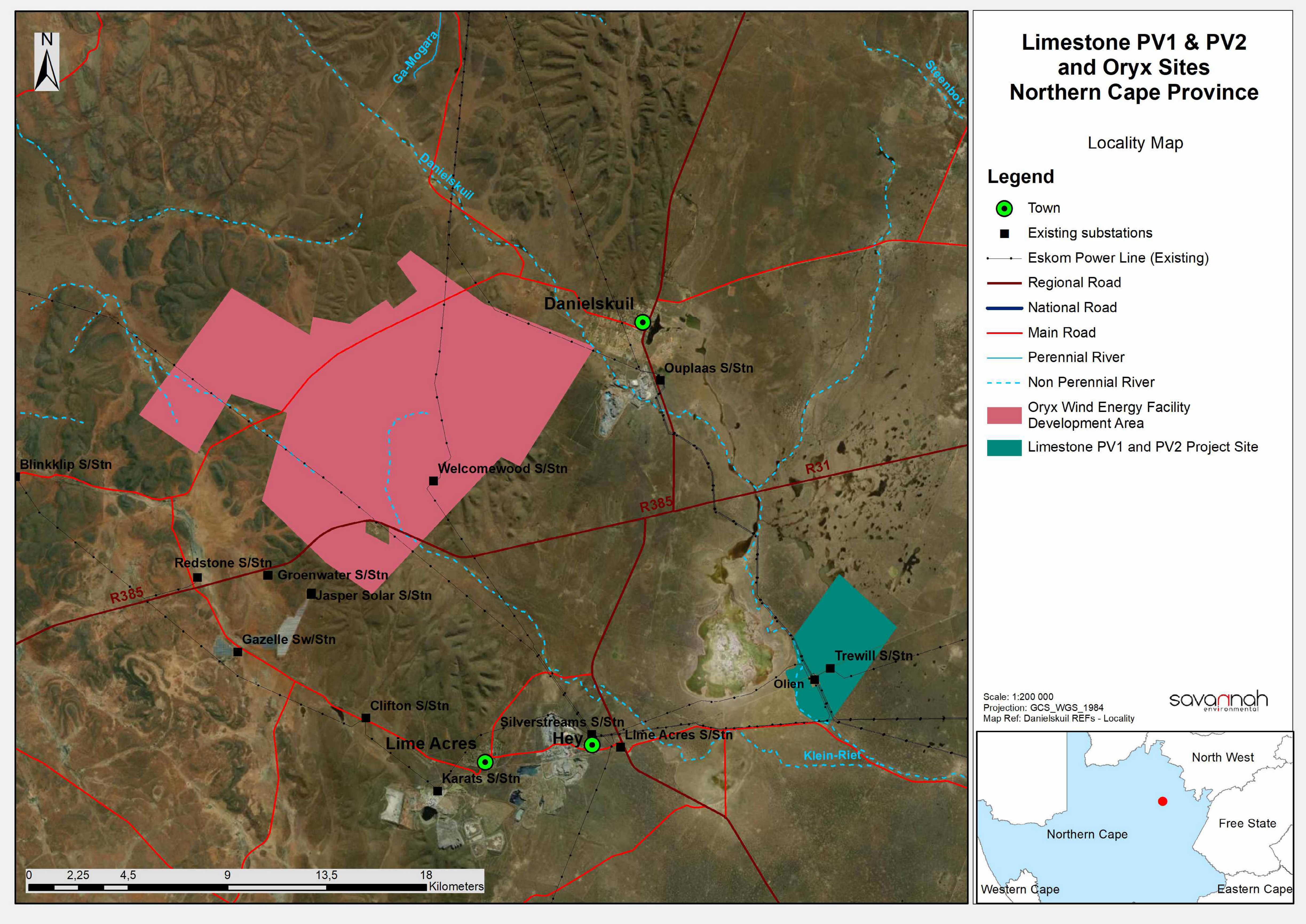
» Deur telefonies, per faks of per e-pos te reageer op die uitnodiging vir u betrokkenheid.
» Deur die Antwoordvorm aan die tersaaklike kontakpersoon terug te besorg.
» Deur tydens die OIE-prosesse met die projekspan te skakel.
» Deur die openbare deelname- en/of omgewingskonsultant met navrae of kommentaar te kontak.
» Deur insae oor en kommentaar op die verslae te bied, en wel binne die gestipuleerde insae- en kommentaartydperk.

As u uself as 'n B&GP vir die beoogde projekte ag, moedig ons u aan om gebruik te maak van die geleenthede wat deur die openbare deelnameproses geskep word om kommentaar te lewer of daardie kwessies en knelpunte te opper wat u raak en/of vir u van belang is of waaroor u meer inligting versoek. U insette vorm 'n belangrike deel van die OIE-prosesse.

Deur die meegaande Antwoordvorm in te vul en aan ons terug te besorg, registreer u uself outomaties as 'n B&GP vir die beoogde projekte en verseker u dat kennis geneem sal word van die kommentaar, knelpunte of navrae wat u met betrekking tot die projekte opper. Let asseblief daarop dat alle kommentaar wat ontvang word, in die projek se dokumentasie vervat sal word. Dit kan persoonlike inligting insluit.

Kopiereg: Savannah Environmental (Edms.) Bpk.

Figuur 1: Projekterrein vir die Limestone FV1, Limestone FV2 en Oryx Windkragaanleg



Kopiereg: Savannah Environmental (Edms.) Bpk.

KOMMENTAAR EN NAVRAE

Rig alle kommentaar, navrae of antwoorde aan:

Savannah Environmental (Edms.) Bpk.
Molatela Ledwaba
Posadres: Posbus 148, Sunninghill, Johannesburg, 2157
Tel: 011 656 3237
Selfoon: 060 978 8396
Faks: 086 684 0547
E-pos: publicprocess@savannahsa.com

Kopiereg: Savannah Environmental (Edms.) Bpk.

savannah environmental

OMGEWINGSIMPAKEVALUERINGS- EN OPENBARE DEELNAMEPROSES

BEOOGDE ONTWIKKELING VAN DIE LIMESTONE FV1-SONKRAGAANLEG, LIMESTONE FV2-SONKRAGAANLEG EN DIE ORYX WINDKRAGAANLEG NABY DANIELSKUIL, NOORD-KAAPPROVINSIE
(DFFE Verw.nos.: Om uitgereik te word)

Registrasie & Kommentaarvorm

Desember 2022

Stuur voltooide registrasie- en kommentaarvorm aan: ***Molatela Ledwaba*** *van* ***Savannah Environmental***
Foon: *011 656 3237* / ***Selfoon (ook 'please call me'):*** *060 978 8396* / ***Faks:*** *086 684 0547*
E-pos: ***publicprocess@savannahsa.com*** *Posadres:* ***Posbus 148, Sunninghill, 2157***

U registrasie as 'n belanghebbende en/of geaffekteerde party is slegs van toepassing tot hierdie projekte en die voorsiening van u kontakinligting is beskermd deur die Beskerming van Persoonlike Inligting Wet van 2013 (PoPI Act, 2013)

Verskaf asseblief u persoonlike kontak besonderhede:

Naam & Van:			
Organisasie			
Amp- of Postitel			
Posadres:			
Telefoon:		Faks	
Selfoon			
E-pos:			

Ek stel belang om te registreer as 'n belangstellende en/of geaffekteerde party (B&GP) op die volgende projekte se databases (merk asseblief toepaslike boks met 'n X)

Limestone FV1 Fasiliteit		Oryx Windkragaanleg	
Limestone FV2 Fasiliteit			

In terme van die OIE Regulasies, 2014, soos gewysig, Regulasie 43(1), moet u as 'n B&BP registreer om verdere inligting rakende hierdie OIE projekte te ontvang en u moet ook u direkte besigheid, finansiële, persoonlike of ander belang wat u mag hê rakende in die goedkeuring of afkeuring van die aansoek, vermeld (gebruik addisionele bladsye indien nodig)**:**

Lys u kommentaar rakende die projek per u keuse bo (gebruik addisionele bladsye indien nodig)**:**

Verskaf bykomende kontak besonderhede van addisionele persoon/e wie u beskou as potensiële belangstellende en/of geaffekteerde partye

Naam & Van:	
Posadres:	
Telefoon:	
Selfoon:	
E-pos:	

SEE REVERSE SIDE FOR ENGLISH