

NOVEMBER
2020



ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

DEVELOPMENT OF A CLUSTER OF RENEWABLE ENERGY FACILITIES BETWEEN SOMERSET
EAST AND GRAHAMSTOWN,

EASTERN CAPE

A cluster of renewable energy facilities is proposed to be developed on various project sites located between Somerset East and Grahamstown within the Cookhouse Renewable Energy Development Zone (REDZ), as well as the Eastern Strategic Transmission Corridor. The cluster consists of nine (9) projects which includes six (6) wind farms, two (2) solar energy facilities and one (1) Main Transmission Substation (MTS). A suitable project site for each development has been identified by the project development companies (refer to the attached locality map and table for details).

The entire extent of the projects is located within the Sarah Baartman District Municipality. The western section is located within the Blue Crane Route Local Municipality and the eastern section within the Makana Local Municipality.

Savannah Environmental has been appointed as the independent consultants to undertake Environmental Impact Assessment processes for the projects. The procedure to be followed in applying for environmental authorisation for a large-scale project in a REDZ as well as grid infrastructure within a Strategic Transmission Corridor was formally gazetted on 16 February 2018 (in GN113 and GN114). As such, these renewable energy projects and the proposed MTS, are subject to a Basic Assessment (BA) as gazetted, as well as a shortened timeframe of 57 days for the processing of an Application for Environmental Authorisation following submission of the final BA Report.

The nature and extent of the projects are set out in more detail in this document. All the projects have been included in this background information document (BID) due to the location of the project sites that are in close proximity to one another, and all projects forming part of a cluster of renewable energy facilities. The public participation processes for the projects will also be undertaken concurrently, offering Interested and/or Affected Parties (I&APs) the opportunity to understand the development as a whole and provide comments on all the projects.

Aim of this background information document

This document aims to provide you, as an I&AP, with:

- » an overview of the proposed projects which form part of the cluster.
- » an overview of the Basic Assessment (BA) processes and the studies being undertaken to assess the environmental impacts associated with the proposed projects.
- » details of how you can become involved in the BA processes, receive information, or raise issues regarding the proposed projects which may concern and/or interest you.

Overview of the proposed project

The identified project sites form the basis of investigation for the Basic Assessment (BA) processes. The preferred sites for the projects comprise properties which are privately owned and available for the proposed projects through agreement with the landowners, and are deemed technically feasible by the project developer for such development to take place.

The cluster of projects is divided into two areas, known as the Western Section and the Eastern Section, with the Western Section located near Somerset East and the Eastern Section near Grahamstown. The western section contains seven (7) of the nine projects and the eastern section the remaining two (2) projects.

The projects are proposed in specific response to national government policy dictating energy development within the project sites, namely the Integrated Resource Plan (IRP), which includes the requirement for diversification of the country's energy mix to include renewable energy. Furthermore, Government has prioritised post COVID-19 turnaround plans in terms of renewable energies within the Just Energy Transition (JET), coupled with key development objectives of the various spheres of government from a National, Provincial and Local level. These policies share the same ideals, such as:

- » The utilisation, application and investment in renewable energy resources in South Africa is considered to be an essential means of reducing the carbon footprint of the country,
- » Diversifying the national economy,
- » Reducing poverty, and
- » Providing critical additional energy to that of Eskom



The project sites identified for development are deemed desirable for development based on the wind resource (measured through wind masts deployed on site since 2011), solar resource and available grid connection capacity which connects the Eastern Cape Province to Mpumalanga Province. As the area has been identified as a REDZ, it is earmarked for fast track development of renewable energy. The mix of wind and solar will ensure the optimisation of a supply of steady state baseload type power, as well as play a significant role in the Just Energy Transition (“JET”) by supplying low cost energy to the national grid. At the same time, it will contribute to a JET fund to assist in transitioning jobs from the fossil fuel sector in Mpumalanga to renewable energy. The high-quality wind resource, proximity to the transmission infrastructure and scale of the portfolio may also play a possible role in contributing to the hydrogen economy in South Africa, with Europe as a possible export market.

The cluster is expected to have a meaningful contribution to job creation and development in the region (specifically in the local towns like Makhanda, Bedford, Cookhouse, Alicedale, Somerset East and Adelaide), and ensure optimisation of electricity supply.

The table below provides the project specific details for each of the six wind farm projects contained within the cluster.



Project Name	Hamlett Wind Farm	Ripponn Wind Farm	Redding Wind Farm	Aeolus Wind Farm	Wind Garden Wind Farm	Fronteer Wind Farm
Applicant	Hamlett (Pty) Ltd	Ripponn (Pty) Ltd	Redding Wind (Pty) Ltd	Aeolus (Pty) Ltd	Wind Garden (Pty) Ltd	Fronteer (Pty) Ltd
Section	Western	Western	Western	Western	Eastern	Eastern
Affected properties (i.e. project site)	<ul style="list-style-type: none"> Farm Vaalkop No 164 Remainder of Portion 1 (Midlev ale) of Farm Van Aardts Kraal No 163 Portion 1 of Farm Jaskraal No 160 Remainder of Farm Riet Fontein A No 159 Portion 1 of Farm Riet Fontein A No 159 Remainder of Farm Jaskraal No 160 Remainder of Farm Nieuwe Grond A No 129 Remainder of Farm Wilton No 409 Portion 2 of Farm Middleton No 219 Remainder of Farm Bloemhof No 166 Farm Wilde Honden Kloof No 216 Portion 1 of Farm Bloemhof No 166 	<ul style="list-style-type: none"> Remaining Extent of Farm No 381 Remaining Extent of Farm Wilton No 409 Portion 7 of Farm No 381 Remaining Extent of Farm Hartebeest Kuil No 220 Portion 1 of Farm Hartebeest Kuil No 220 Portion 2 of Farm Haartebeestkuil No 220 Portion 2 of Farm No 230 Remaining Extent of Portion 4 (Pruim Plaas) of Farm Draai Hoek No 221 	<ul style="list-style-type: none"> Farm No 369 Portion 2 of Farm Shepherds Rest No 272 Remainder of Farm Varkens Kuil No 269 Portion 3 (Mlak Leegte) of Farm Driefontein No 259 Portion 1 (Opmeet Fontein) of farm Gras Fonteyn No 258 Remainder of Farm Draai Van Klein Visrivier 254 Portion 1 of Farm Bothas Hoop 358m Remainder of 271 of Farm Request 271 Portion 2 of Farm Request 271 Portion 1 of Farm Request 271 Portion 9 of Farm Britzkraal No 253 Portion 8 (a Portion of Portion 7) of Farm Britzkraal No 253 	<ul style="list-style-type: none"> Remainder of Farm Brand Rug No 268 Remainder of Farm Varkens Kuil No 269 Remainder of Portion 3 of Farm Commadagga No 266 Portion 1 of Farm Vaalkdrans No 299 Portion 1 Glen Roy of Farm Varkens Kuil No 269 Portion 3 Glen Roy a portion of Portion 1 of Farm Modderfontein No 302 Portion 2 Spitzkop of Farm Varkens Kuil No 269 	<ul style="list-style-type: none"> Remaining Extent of Farm Brackkloof No 183 Portion 5 of Farm Hilton No 182 Portion 8 of Farm Hilton No 182 Portion 4 of Farm Vandermerweskraal No 132 Portion 1 of Farm Thursford No 183 	<ul style="list-style-type: none"> Remainder of Farm Table Hill Farm No 187 Portion 2 of Table Hill Farm No 187 Portion 3 of the Farm Table Hill Farm No 187 Remainder of the Farm Hounshow No 131 Portion 1 of Farm Draai Farm No 184 Portion 1 of Farm No 132 Portion 1 of Farm Burnt Kraal No 189 Portion 1 of Farm Table Hill No 187
Contracted Capacity	Up to 333MW	Up to 324MW	Up to 576MW	Up to 297MW	Up to 264MW	Up to 213MW
No of turbines	Up to 37	Up to 36	Up to 64	Up to 33	Up to 47	Up to 38
Turbine hub height	Up to 166m	Up to 166m	Up to 166m	Up to 166	Up to 120m	Up to 120m
Turbine tip height	Up to 246m	Up to 246m	Up to 246m	Up to 246m	Up to 200m	Up to 200m
Rotor diameter	Up to 160m	Up to 160m	Up to 160m	Up to 160m	Up to 160m	Up to 160m



Project Name	Hamlett Wind Farm	Ripponn Wind Farm	Redding Wind Farm	Aeolus Wind Farm	Wind Garden Wind Farm	Fronteer Wind Farm
On-site substation size and capacity	132/33kV collector substation of 100mX100m	132/33kV collector substation of 100mX100m	132/33kV collector substation of 100mX100m	132/33kV collector substation of 100mX100m	132/33kV collector substation of 100mX100m	132/33kV collector substation of 100mX100m
Access Roads (internal and main)	4.5m in width and of a gravel nature	4.5m in width and of a gravel nature	4.5m in width and of a gravel nature	4.5m in width and of a gravel nature	4.5m in width and of a gravel nature	4.5m in width and of a gravel nature
Other associated infrastructure	A 132kV switching station; a 132/33kV on-site collector substation; a 132kV overhead single-or double circuit loop-in loop -out power line; concrete turbine foundations and turbine hardstands; temporary laydown areas which will accommodate storage and assembly areas; cabling between the turbines, to be laid underground where practical; a temporary concrete batching plant; staff accommodation; and Operation and Maintenance buildings including a gate house, security building, control centre, offices, warehouses, a workshop and visitor's centre.					

The table below provides the project specific details for each the two solar energy facility projects contained within the cluster:

Project Name	Solaris Fields Solar Energy Facility	Sun Garden Solar Energy Facility
Applicant	Solaris Fields (Pty) Ltd	Sun Garden (Pty) Ltd
Section	Western	Western
Affected properties (i.e. project site)	<ul style="list-style-type: none"> • Portion 9 of Farm Britzkraal No 253 • Portion 8 (a Portion of Portion 7) of Farm Britzkraal No 253 • Portion 7 of Farm Britzkraal No 253 • Portion 1 of Farm Bothas Hoop No 358 	<ul style="list-style-type: none"> • Portion 9 of Farm Britzkraal No 253 • Portion 8 (a Portion of Portion 7) of Farm Britzkraal No 253 • Portion 7 of Farm Britzkraal No 253 • Portion 1 of Farm Bothas Hoop No 358
Contracted Capacity	Up to 300MW	Up to 300MW
Technology	Photovoltaic (PV)	Photovoltaic (PV)
Technology	Photovoltaic (PV)	Photovoltaic (PV)
On-site substation size and capacity	132/33kV collector substation of 100mX100m	132/33kV substation of 100mX100m
Access Roads (internal and main)	4.5m in width and of a gravel nature	4.5m in width and of a gravel nature
Other associated infrastructure	A 132/33kV on-site collector substation; a 132kV overhead single-or double circuit loop-in loop -out power line; centralised inverter stations or string inverters; cabling between the panels, to be laid underground where practical; a temporary laydown area; staff accommodation; and Operation and Maintenance buildings including a gate house and security building, control centre, offices, warehouses, a workshop and visitor's centre.	

The table below provides the project specific details for the Main Transmission Substation contained within the cluster:

Project Name	REDZ 3 Power Corridor 400MTS
Applicant	Wind Relic (Pty) Ltd
Section	Western
Affected properties (i.e. project site)	<ul style="list-style-type: none"> • Farm 434 • Portion 3 of Farm Driefontein 259
Capacity	400KV
Footprint	600mX600m
Access Roads (internal and main)	4.5m in width and of a gravel nature

For the assessment of the MTS the developer has identified a larger area within which the MTS will be placed in order to cater for the avoidance of sensitive environmental features. This larger area will have an extent of approximately 400ha. The siting of the 400 kV MTS forms part of Eskom's planning for the area for new proposed substations - Poseidon B and C.

It is the developer's intention to supply the electricity generated from the facilities to private off-takers in the region, with key customer focus areas primarily being within the industrial, mining and commercial sectors where there is a need to shift towards cleaner and more sustainable sources of energy. The expected load requirements for each of the potential customers are in excess of 1 000 GWh per annum. The generated electricity will be evacuated through use of the national electricity grid and through a wheeling agreement with Eskom for the use of the existing grid connection infrastructure in the area.



More about wind turbines

Wind turbines use the energy from the wind to generate electricity. A wind turbine consists of four large main components (Figure 1):

- » The rotor
- » The nacelle
- » The tower
- » The foundation unit

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 and generates electricity. The use of wind for electricity generation is essentially a non-consumptive use of a natural resource and produces zero greenhouse gas emissions.

Turbines are able to operate at varying speeds. The amount of energy a turbine can harness depends on both the wind velocity and the length of the rotor blades. The turbines being considered for use at the six wind farms will range between 4.2MW - 9MW in capacity.

Various wind turbine designs and layouts on the project sites are being considered by the project developer in order to maximise the generating capacity of the sites while minimising environmental impacts. The final facility layouts, turbine capacities and models will be dependent on what is deemed suitable for the project sites in relation to, among other things, further studies of the wind regime, terrain, and environmental constraints and social sensitivities.

The length of the construction period for each of the wind farms is estimated to be approximately 30 months. A turbine is designed to operate continuously, with low maintenance for 20 to 25 years.

More about solar pv technology

Solar energy facilities (such as those that utilise PV technology) 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 proposed solar energy 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. This circuit captures the released electrons in the form of an electric current (i.e. Direct Current (DC)).

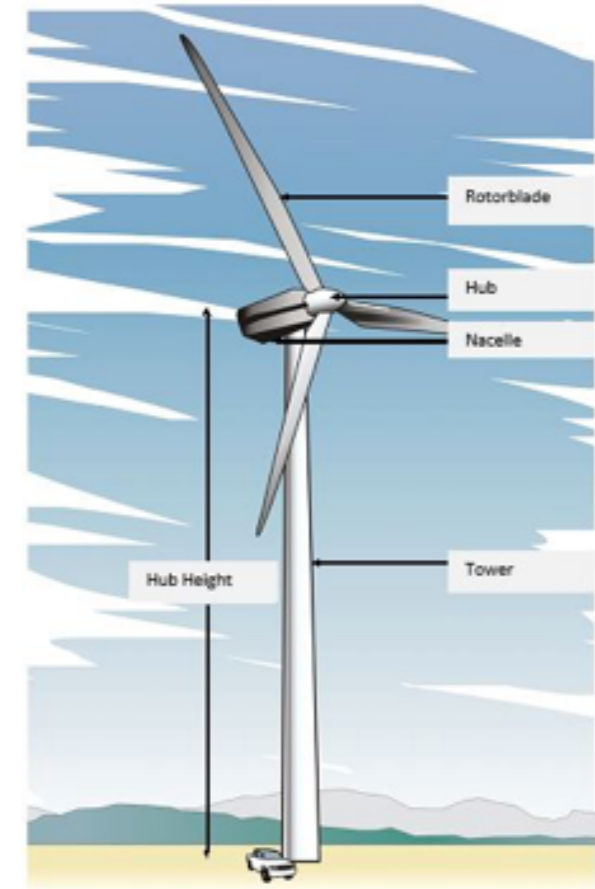


Figure 1: Main components of a wind turbine

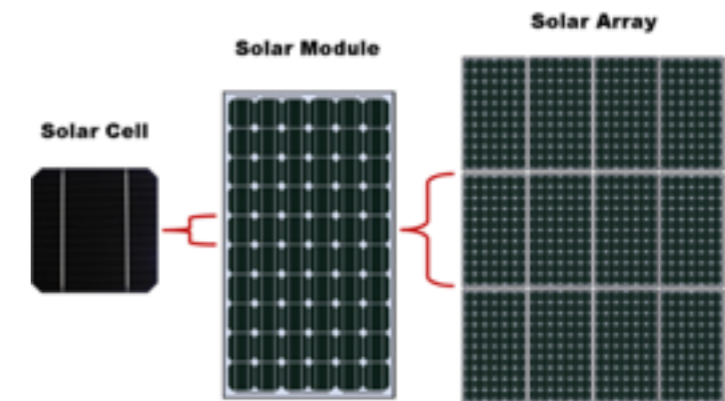


Figure 2: Overview of a PV cell, module and array/panel (Source: pveducation.com)



A PV solar panel is made up of individual PV cells connected together, whereas a solar PV array is a system made up of a group of individual solar PV panels electrically wired together to form a much larger PV installation.

The PV panels will be fixed to support structures and will utilise a horizontal single-axis tracking system. Bifacial panels are being considered.

Inverters

Inverters are used to convert 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. In order to connect large solar facilities, such as the ones being proposed, to the national electricity grid, numerous inverters will be arranged in several arrays to collect and convert power produced by the facilities.

PV panels are designed to operate continuously for more than 20 years, mostly unattended and with low maintenance. The length of the construction phase for each solar energy facility will be between 24 and 30 months.

Basic assessment processes

As per the EIA Regulations published in terms of Section 24(5) of the National Environmental Management Act No 107 of 1998 (NEMA), the applicants will require authorisation from the National Department of Environment, Forestry and Fisheries (DEFF) (in consultation with Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)) for the undertaking of the projects. Due to the location of the project sites within a REDZ and a Strategic Transmission Corridor, Basic Assessment (BA) processes are required to be undertaken for all the proposed projects in accordance with GN113 and GN114, as formally gazetted on 16 February 2018. Separate applications for Environmental Authorisation will be submitted to the DEFF for each project (i.e. nine applications in total). Each application is required to be supported by comprehensive, independent environmental studies undertaken in accordance with the EIA Regulations, 2014, as amended.

An environmental impact assessment is an effective planning and decision-making tool. It allows the environmental consequences resulting from a facility during its planning, construction and operation to be identified and appropriately managed. It provides the opportunity for the developer to be forewarned of potential environmental issues, and allows for the resolution of the issue(s) reported on in the BA report as well as dialogue with interested and/or affected parties. Local level issues associated with the siting of the planned wind farms, solar energy facilities and MTS are being considered by specialist consultants through pre-construction monitoring campaigns and site-specific studies and assessments in order to delineate areas of potential sensitivity within each of the broader areas and the identified project sites. Once constraining factors have been defined, the layout of the wind turbines, solar panels, MTS and all associated infrastructure will be planned to minimise social and environmental impacts as far as possible.

Savannah Environmental has been appointed as the independent environmental consultant, to undertake separate Basic Assessments for the projects to identify and assess all potential environmental impacts associated with the various projects and recommend appropriate mitigation measures in an Environmental Management Programme (EMPr) for those impacts which cannot be avoided. As part of these environmental studies, I&APs will be actively involved through the public involvement process being undertaken by Savannah Environmental.

What are the potential environmental impacts associated with the projects?

Based on the nature and extent of the proposed projects, the nature of the affected area, and experience of the consultants on similar projects and within the study area, a number of potential environmental impacts associated with the development of the various projects have been identified at this stage in the process. Impacts on the following are being fully assessed through separate specialist studies for each project:

- » Biodiversity – which includes ecology, wetlands, fauna and flora and assesses the potential impact and the associated disturbance of vegetation on the ecology and biodiversity (including critical biodiversity areas and broad-scale processes).
- » Avifauna – which includes pre-construction monitoring in terms of the relevant guidelines and assesses the impact on avifaunal habitats and sensitive species.
- » Bats – which include pre-construction monitoring in terms of the relevant guidelines and assesses the impact on bat habitats and sensitive species.
- » Soils and agricultural potential - which includes consideration of affected land types and assesses the significance of loss of agricultural land and soil degradation and/or erosion.
- » Heritage - which includes heritage, cultural archaeological, palaeontological and cultural landscape resources, and assesses the potential of disturbance to or destruction of heritage resources during the construction phase through excavation activities.
- » Visual – which includes the visual quality of the area and assesses the impact of the development of the infrastructure associated with each project on the aesthetics within the area and on sensitive visual receptors.
- » Social and socio-economic environment – which assesses the positive and negative socio-economic impacts associated with each project.
- » Noise – which includes identification of the sensitive receptors within the area and assesses the significance of the disturbance during construction and operation of the various wind farm facilities.



- » Traffic – which assesses the impact of the developments on the traffic and road networks in the area.
- » Cumulative impacts – which assess the past, current and reasonably foreseeable future impact of the proposed projects, considered together with the impact of activities associated with the projects, that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities in the area. In this regard, similar projects within a radius of 30km will be considered.

It must be noted that a combination of the studies above will be undertaken for each of the projects subject to the infrastructure associated with the individual projects and the potential impacts expected to occur. Any additional potential impacts identified through the BA processes will also be assessed in the relevant BA reports.

The independent specialist studies are being undertaken wherein the potentially significant impacts will be assessed and ground-truthed. Where avoidance of impacts is not possible, practical and achievable mitigation measures will be recommended in order to minimise the significance of the potential impacts identified. These recommendations will be included within a site-specific Environmental Management Programme (EMPr) compiled for each project. It must be noted that the EMPr for the MTS will be as per the generic template gazetted by the DEFF (GNR435).

Specialist studies will be informed by existing information, field observations and input from the public participation process. As an I&AP, your input is considered an important part of the process, and we urge you to become involved.

Public involvement process

The sharing of information forms the basis of the public involvement process and offers you the opportunity to become actively involved in the BA processes from the outset. Comments and inputs from I&APs during the BA process are encouraged in order to ensure that all potential impacts are considered within the ambit of the study.

The public involvement process aims to ensure that:

- » Information containing all relevant facts in respect of the applications is made available to I&APs for review.
- » Participation by potential I&APs is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the application.
- » Adequate review periods are provided for I&APs to comment on the findings of the BA reports.

The Public Participation Process will be undertaken in-line with the Public Participation Plan which has been approved by DEFF.

Your responsibilities as an I&AP

In terms of the Department of Environmental Affairs Public Participation Guideline 2017 (published in terms of section 24J of NEMA), as part of the BA process an I&AP has the responsibility to:

- » Provide comment regarding the projects within the specified timeframes.
- » Submit written comment directly to the EAP.
- » Disclose any direct business, financial, personal or other interest which that I&AP may have in the approval or refusal of the applications.

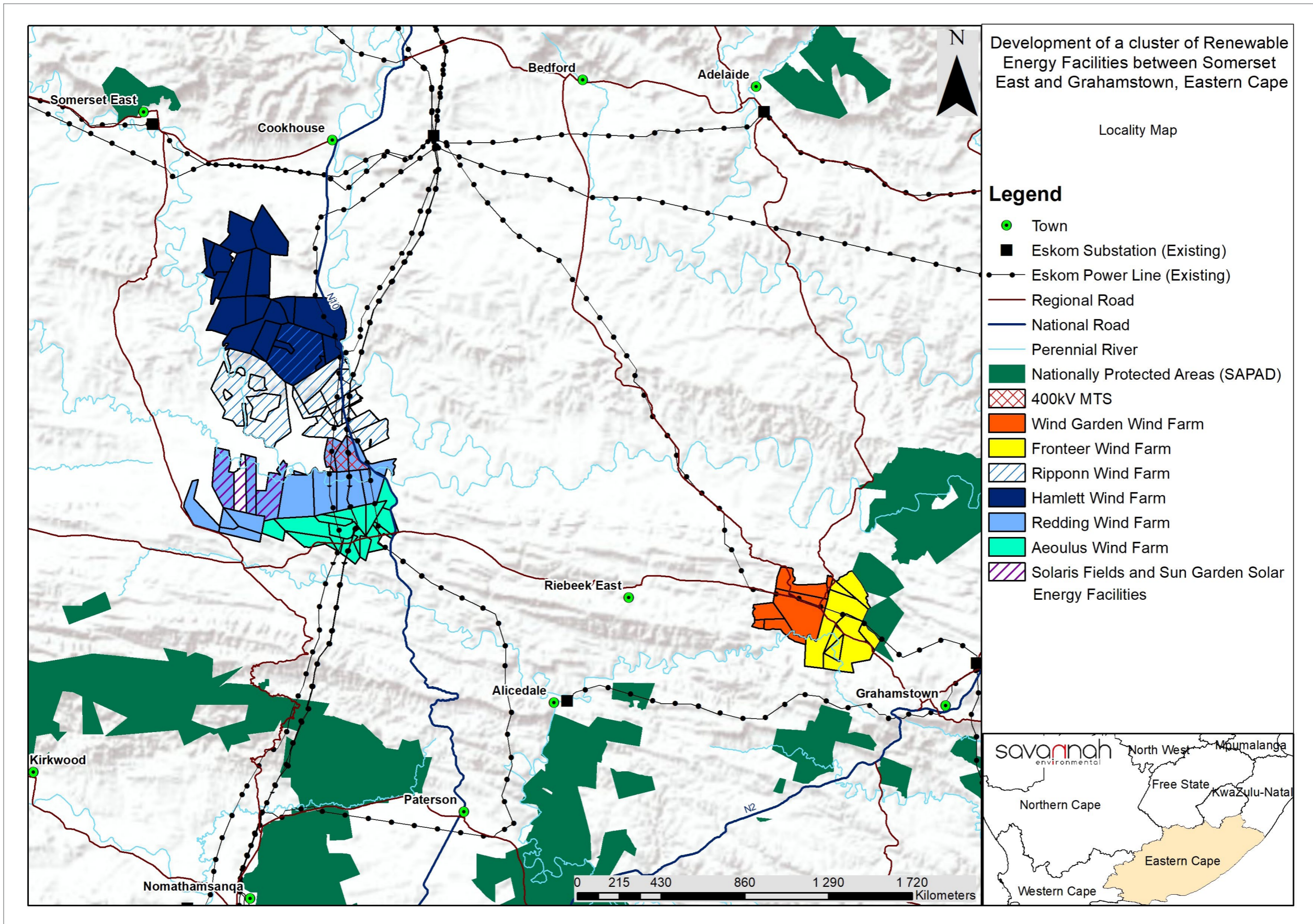
How to become involved

1. By responding (by phone (including mobile), post, fax or email) to our invitation for your involvement which has been advertised in provincial and local newspapers and on site.
2. By returning the attached Reply Form to the relevant contact person.
3. By attending the meetings to be held (through a virtual platform) during the course of the BA process. Face-to-face meetings could be held but only where sanitary conditions and where the Regulations relating to minimising the risks associated with COVID-19 can be observed.
4. By contacting the consultants with queries or comments.
5. By reviewing and commenting on the BA Reports within the stipulated 30-day review 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 involvement process to provide comment, or raise those issues and concerns which affect and/or interest you, and about which you would like more information. Your input into this process forms a key element of the BA process.



Figure 3: Locality Map





COMMENTS AND QUERIES

Direct all comments, queries or responses to:

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

To view project documentation, visit
www.savannahSA.com



BASIC ASSESSMENT PROCESSES AND PUBLIC PARTICIPATION PROCESS

**DEVELOPMENT OF A CLUSTER OF RENEWABLE ENERGY FACILITIES BETWEEN SOMERSET EAST AND GRAHAMSTOWN,
EASTERN CAPE**

November 2020

Return completed registration and comment form to: **Nicolene Venter** or **Ronald Baloyi** 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:		

Please indicate on which project/s you would like to register as an interested and affected party (I&AP)?
(please tick the relevant box)

Wind Farms

Hamlet		Rippon		Redding		Aeolus		Wind Garden		Fronteer	
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Solar Energy Facilities

Solaris Fields		Sun Garden	
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REDZ 3 Power Grid Corridor 400MTS

Grid Connection Corridor	
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Note: 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 Basic Assessment process and comment on the Reports being made available for comments, 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):

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Please list your comments regarding the Environmental Impact Assessment process (add additional pages if necessary):

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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:
