PROPOSED IMPOFU WEST WIND FARM AND ASSOCIATED INFRASTRUCTURE, NEAR OYSTER BAY, EASTERN CAPE

NON-TECHNICAL SUMMARY OF THE DRAFT SCOPING REPORT

INTRODUCTION

Red Cap Energy (Pty) Ltd is overseeing the proposed development of up to three possible wind farms and associated infrastructure, near Oyster Bay in the Eastern Cape. These proposed wind farms are named the Impofu West Wind Farm, the Impofu North Wind Farm and the Impofu East Wind Farm, and are referred to collectively as the Impofu Wind Farms. Each Wind Farm is currently undergoing a separate environmental authorisation process. The Impofu West Wind Farm is the subject of this Application. The Proponent, *Red Cap Impofu West (Pty) Ltd*, hereafter referred to as Red Cap, proposes to develop the Impofu West Wind Farm, which is located in the Kouga Local Municipality of the Sarah Baartman District Municipality, Eastern Cape. The broader area was formerly solely rural in character, but has transitioned to a renewable energy landscape due to the presence of wind turbines and associated infrastructure in the area.

An Environmental Impact Assessment (EIA) is a process that is undertaken in terms of the requirements of the National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, and its associated regulations (Government Notice Regulation (GN R.) 982, 983, 984 and 985, as amended). The purpose of the EIA process is to evaluate the environmental and socio-economic characteristics of the proposed project and the consequences of the project on the environment and the people living in the area that would be affected by the proposed project activities. An EIA process is needed because the proposed project triggers several activities that are listed in the EIA Regulations[1]. The proposed project therefore requires authorisation by the environmental decision-maker, which in this case is the National Department of Environmental Affairs (DEA). Red Cap, as the Proponent, has appointed Aurecon South Africa (Pty) Ltd (Aurecon) as the environmental consultant (EAP) to undertake the environmental authorisation process for the proposed project. The various stages of the EIA process are shown in Figure 6 below. This document is a non-technical summary (NTS) of the Draft Scoping Report prepared for the project, based on the completion of the Pre-Application Phase and associated Pre-Application public participation period. This NTS provides an overview of:

- An introduction to the proposed project, iin the context of wind energy in South Africa;
- The role-players involved in the environmental assessment process;
- The legislation that governs the project and the relevant policy framework;
- The approach to the EIA including a description of the proposed public participation;
- The screening and iterative design process which has led to the preferred site layout and rationale for the approach to alternatives in the EIA;
- A concise description of the proposed project including the need and desirability thereof;
- A brief description of the baseline environment and a high level description of the potential environmental impacts and proposed mitigation measures – note that the avifauna and bat studies have been updated since the Pre-Application Phase of the project;
- A summary of the potential cumulative impacts;
- The conclusion and summary of the Scoping Report; and
- The Plan of Study for the EIA which sets out the way forward.

[1] These are activities 11, 12, 19, 24, 28 and 56 of Government Notice (GN) R983 of 2014, activity 1 of GN R984 of 2014, and activities 4 and 18 of GN R985 of 2014.

WHAT IS BEING PROPOSED AND WHERE?

The proposed Impofu West Wind Farm site is centred on 34°6'32.7" South latitude and 24°31'39.17" East longitude, and is approximately 14 kilometres (km) north-west of Oyster Bay (refer to Figure 2). The site is situated to the south of the N2 National Road and R102 Main Road, and is approximately 2,760 hectares (ha) in extent, comprising 8 adjoining farm portions as illustrated in **Figure 3**. The site is bordered immediately to the west by the existing Tsitsikamma Community Wind Farm. The primary land use of the site is agriculture, specifically dairy farming. As such, there are several farm dams and farmsteads on the site, and numerous internal farm and gravel access roads.

A wind farm, requires a number of key components to facilitate the generation of electricity at a large scale, this includes wind turbines, powerlines and substation facilities to collect the generated electricity and distribute it to other users (as illustrated in Figure 1). Up to 41 wind turbine locations have been proposed for the Impofu West Wind Farm which would directly affect approximately 10 ha and generate up to 205 MW.

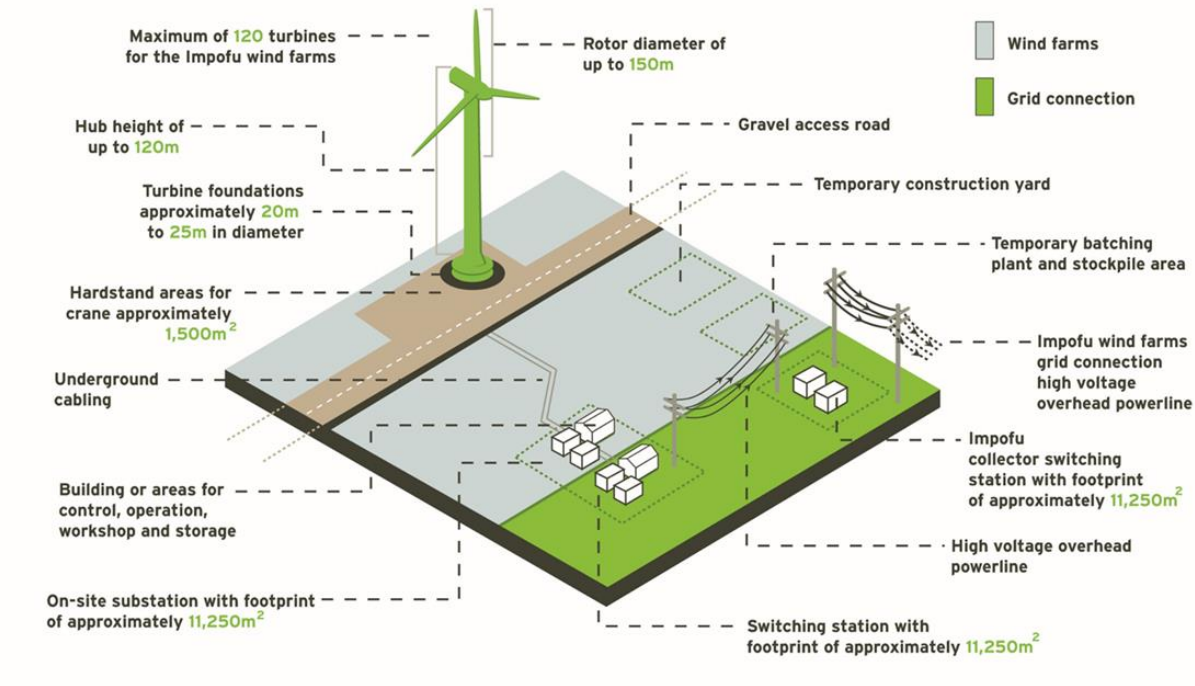

Figure 1: Development components for the Impofu West Wind Farm

A Grid Connection forms part of the supporting wind farm infrastructure. The Grid Connection will evacuate the energy generated by the Impofu West Wind Farm via a proposed 132 kV overhead powerline to Port Elizabeth. The connection includes three short overhead powerlines that originate from each of the wind farm sub / switching stations, which connect to a combined central Impofu Collector Switching Station situated on the Impofu West Wind Farm site. From this Impofu Collector Switching Station, a single power line of approximately 120 km will connect into the Nelson Mandela Bay Metropolitan Municipality's Chatty substation. This infrastructure (the three Eskom Switching Stations, the three Collector Powerlines, the Collector Substation and the 120 km powerline) are collectively termed the 'Grid Connection' and will be assessed in a separate Basic Assessment Process, which is being undertaken in parallel with the Scoping and EIR process for the Wind Farm.

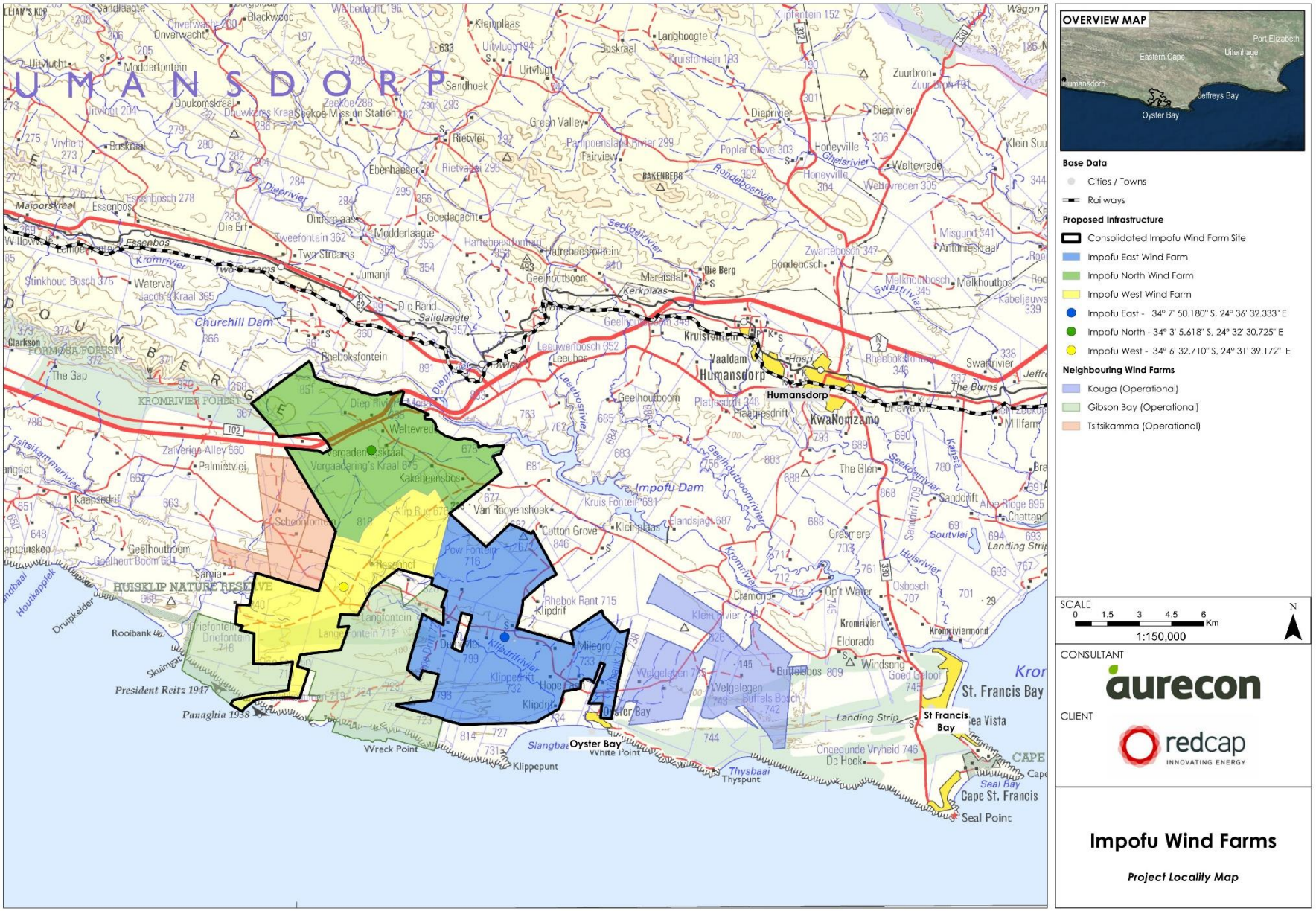

Figure 2: Project Locality Map

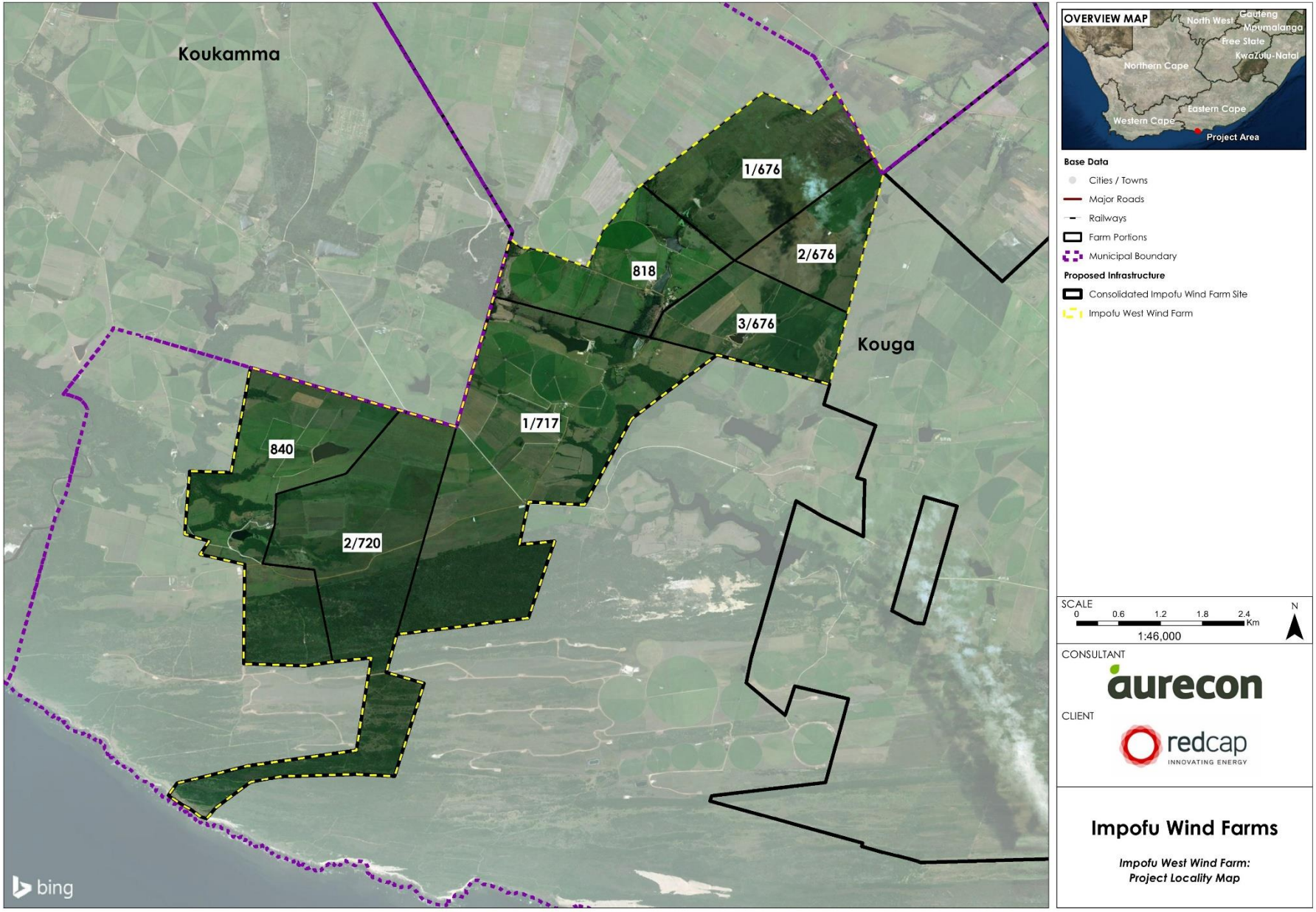

Figure 3: Location of the farm portions for the proposed Impofu West Wind Farm near Humansdorp in the Eastern Cape

The lifecycle of the Impofu West Wind Farm will occur in project phases, namely: pre-construction, construction, operation and decommissioning. The proposed activities associated with each of these phases are summarised below:

Figure 4: Summary of activities associated with Impofu West Wind Farm

The construction phase of the proposed project is anticipated to last for 18 – 24 months. It is unknown at this stage when construction would commence, as this would be dependent on the REIPPPP programme and other related permit requirements for a wind farm, however it is anticipated that construction would commence within the next five years. Should decommissioning occur, this would only be likely after approximately 20 years.

WHAT ALTERNATIVES ARE BEING CONSIDERED?

The NEMA process requires that feasible alternatives are considered during the EIA process. The EIA process requires alternatives to be considered and assessed during the Scoping phase to achieve the most environmentally and socially responsible development. An alternative is defined as a possible course of action, in place of another, that would meet the same purpose and need. The alternative types can include:

- Location alternatives;
- Design and layout alternatives;
- Technology alternatives;
- Routing of linear activities such as roads; and
- The No-go alternative.

Appendix 2 (Contents of Scoping Report) of GN R982 of 2014, as amended, (2)(1)(g)(x), states that '*if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such*' should be provided in the Scoping Report and described in full.

In terms of location alternatives, only one location was considered suitable for the development. This is because the area proposed for the Impofu West Wind Farm lies on a section of coastal plain between Cape St Francis and Oyster Bay, and is therefore exposed to consistent winds from the south west and south east respectively. This results in excellent wind conditions and low levels of turbulence, making it one of the best wind resources in the country and ideal for a wind farm development. Furthermore, the site is mainly transformed flat farmland and is easily accessible. Other attractive sites were discarded due to the presence of Cape Vulture roosts adjacent to the sites, and due to potential issues with the Square Kilometre Array (SKA) telescope and lack of grid connection possibilities.

In terms of the site layout, Red Cap have proactively sought to identify the best practical environmental option possible for the proposed project site through a rigorous, iterative and multi-disciplinary process, which drew on a large body of existing knowledge and specialist expertise relating to the study area. This approach aligns with the NEMA principles advocating for sustainable development through the adoption of the mitigation hierarchy (refer to Figure 5). Through the application of this hierarchy, 'avoidance' of environmental impacts was the basis for the approach.

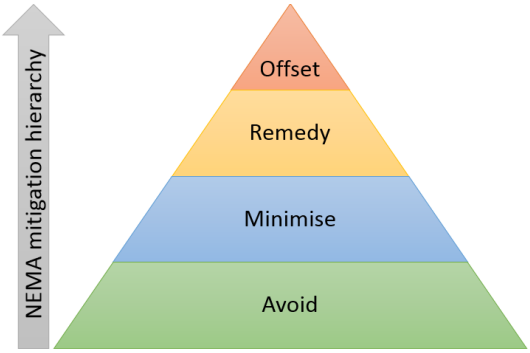

Figure 5: Mitigation hierarchy

This detailed Screening and Iterative Design Process involved the EAP, Red Cap and a multi-disciplinary team of specialists, and was based on identification and mapping of No-Go areas of the site to avoid all environmental, socio-economic and technically sensitive areas. The site layout and design for the respective infrastructure components was therefore informed by the specialist sensitivity mapping and designed by the engineers iteratively with ongoing and detailed specialist and landowner input throughout the design process. Groundtruthing of the turbines by certain specialists informed micro-siting, and was also undertaken for areas of concern in relation to the other components (e.g. roads and overhead powerlines). This rigorous process motivates that only the preferred site layout will be assessed for the purposes of the EIA as it is considered to be the best practical environmental option possible for the proposed project site.

Technology alternatives for wind farms would focus specifically on turbine specifications, such as blade length and hub height. Turbine specifications are constantly improving and evolving, therefore it is not known at this stage what the turbine specifications would be at time of construction. A worst-case scenario has been adopted to allow for a range of specifications to which the final turbine must conform.

The No-Go alternative assumes that the project is not developed, which entails that the proposed activity does not go ahead and the *status quo* of the farming activities will continue. This alternative can provide the baseline scenario against which other alternatives can be compared. In this case the negative impacts of the project would not be experienced but the benefits of the project would be relinquished. The opportunity to provide renewable

energy contributing to national targets would also not be achieved in this instance. This is the only other alternative that is assessed in the EIA process.

HOW DOES THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS WORK?

The purpose of the EIA is to systematically evaluate the environmental and socio-economic impacts of the proposed project activities. It is undertaken in terms of the requirements of the National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, and its associated EIA regulations (i.e. Government Notice Regulation (GN R.) 982, 983, 984 and 985, as amended).

Where negative impacts are likely to result from the project, measures can be recommended to avoid or reduce these impacts to a level where the impacts are considered acceptable from an environmental and social perspective. Where positive impacts are likely to result from the project, measures can be recommended to enhance these impacts.

The EIA process also provides Interested and Affected Parties (I&APs) with an opportunity to comment on the proposed project and be kept informed about decisions that may affect them or the environment. The various stages of the process are shown in Figure 6 below:

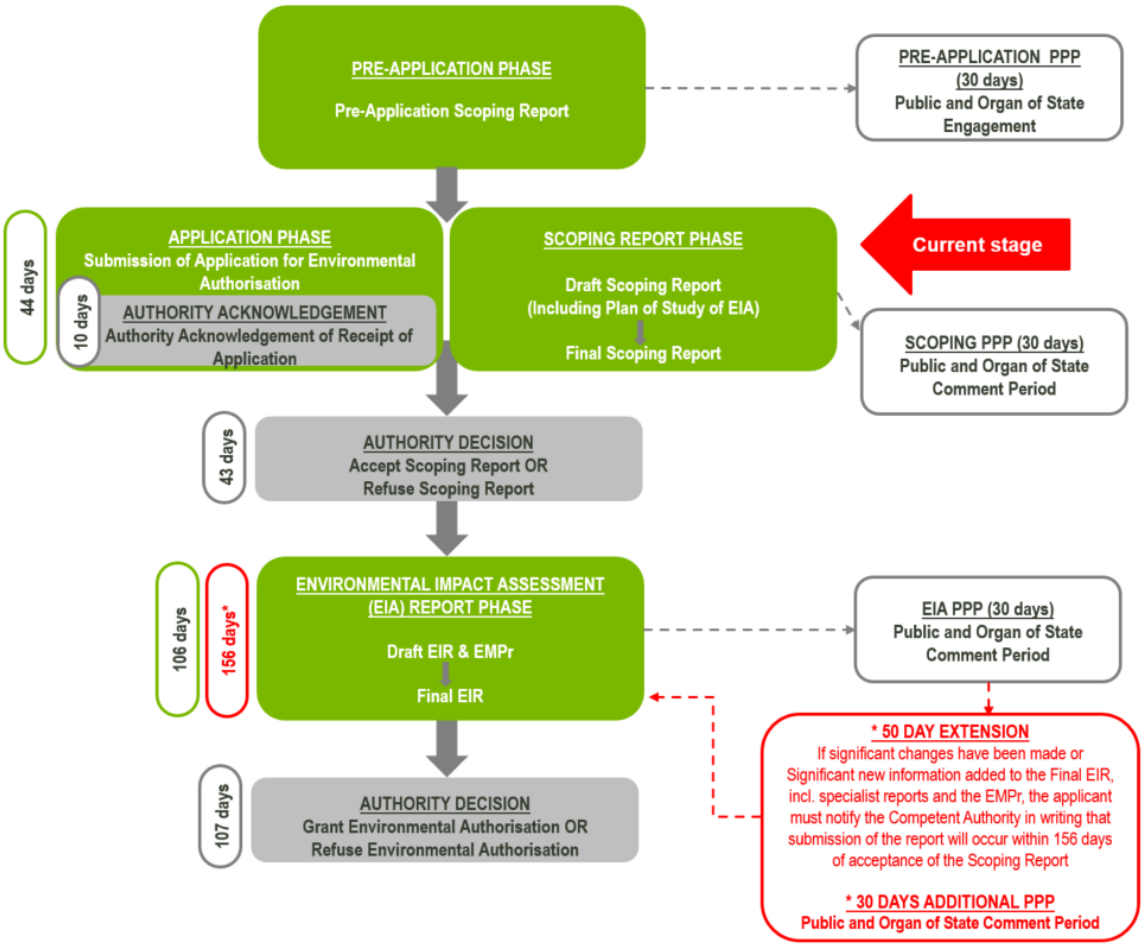

Figure 6: EIA process to be followed for the proposed project

As the EIA process prescribes stringent timeframes for Scoping and EIA, the approach has been to allow for as much detailed investigation and participation of I&APs upfront as possible, prior to commencement of the legal

timeframes when an Application for environmental authorisation is submitted to the DEA. Therefore, the Pre-Application Phase, which has recently been completed, involved a lengthy and detailed Screening and Iterative Design Process and significant pre-application public participation, including the circulation of the Pre-Application Scoping Report. The project is currently in the official Scoping Phase as shown in Figure 6. This phase is commencing with the simultaneous submission of the Application for environmental authorisation and the circulation of the Draft Scoping Report for public comment.

CURRENT ENVIRONMENTAL CONTEXT AND POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The proposed development could potentially produce a range of environmental and socio-economic impacts. A team of specialists, listed in Table 1, was appointed to identify these potential impacts and to propose mitigation measures to reduce the potential negative impacts, and enhance the positive impacts. The specialists assessed the significance of these potential impacts using a consistent methodology supplied by the EAP. The significance ratings have been provided for impacts anticipated from the proposed project before and after mitigation measures are implemented. A summary table showing all the significance ratings of the expected impacts is presented in Table 2 on page 15. For details of each impact study, please refer to the complete Draft Scoping Report. The combination of potential impacts from the proposed Impofu West Wind Farm and other proposed wind farms in the wider study area may result in significant impacts and therefore, the assessment also identifies and considers potential cumulative impacts. The environmental aspects and potential impacts relevant to this project are discussed below:

Table 1: Impact assessment and the specialist team

Potential impacts	Identified specialist
Biophysical impacts:	
Terrestrial Ecology	Simon Todd (3Foxes Biodiversity Solutions (Pty) Ltd)
Aquatic Ecology	Dr Brain Colloty (Scherman, Colloty & Associates)
Bats	Werner Marais (Animalia consultants)
Avifauna	Jon Smallie (Wildskies ecological services)
Socio-economic impacts:	
Agricultural resources	Johann Lanz (Independent consultant)
Impact on regional and local community and economy	Matthew Keeley and Thomas Parsons (Urban-Econ Development Economists)
Palaeontology	Dr John Almond (Natura Viva)
Archaeology	Dr Peter Nilssen (Independent Consultant)
Noise and Shadow Flicker	Astrid Peeters and Lien Van Breusegem (3E)
Visual	Quinton Lawson and Bernard Oberholzer (Quinton Lawson, Architect and Bernard Oberholzer, Landscape Architect)

Climate

The climate of the region falls within the marine temperate climate region of South Africa which is characterised by frontal weather, leading to changeable often overcast and moderate weather conditions. The broad Sarah Baartman District Municipal area experiences an average summer temperature of 23°C, and a winter average of 17°C. The study area receives an average rainfall of up to 662 mm per annum, with rainfall distributed throughout the year. The area is generally described as windy, with the dominant wind direction from the west, with the contribution of the highest wind speeds from the west-north-west and to a lesser extent from the south.

Topography, geology and soils

The proposed Impofu West Wind Farm is located on mostly flat terrain and is mapped as having a slope of less than 5% but may be greater in a few isolated spots. The site is located on coastal plains at altitudes between 180 and 250 metres (m) above sea level. Soils of the site are predominantly deep to moderately deep, very sandy soils with some drainage limitations and consist of the Constantia, Fernwood, Wasbank, Longlands, Houwhoek, Witfontein, Pinegrove, Kroonstad, Katspruit, Westleigh, Glencoe, Lamotte and Clovelly soil forms. Quarzitic Table Mountain and Bokkeveld Groups dominate the underlying geology of the area. The geology of the site is not considered to be a constraint to the development.

Terrestrial Ecology

Terrestrial ecology includes land-based plants and animals (excluding aquatic). An ecological specialist undertook site visits during September 2017 and March 2018. Based on the site investigation, the vegetation type covering the study area is mostly of Tsitsikamma Sandstone Fynbos with Southern Cape Dune Fynbos in the southern extent of the site. The ecologist also identified a narrow band of Eastern Coastal Shale Band and Garden Route Shale Fynbos Vegetation which traverses the site. The diversity of the vegetation is considered low and it was confirmed from a site visit by the ecologist that the majority of the area has undergone significant land use change and is now transformed, including some Critical Biodiversity Areas (CBA's) within the site. Weedy and alien species can be observed on site and on the old pasture lands, some of these areas are used by fauna for grazing however the significance of this remains low.

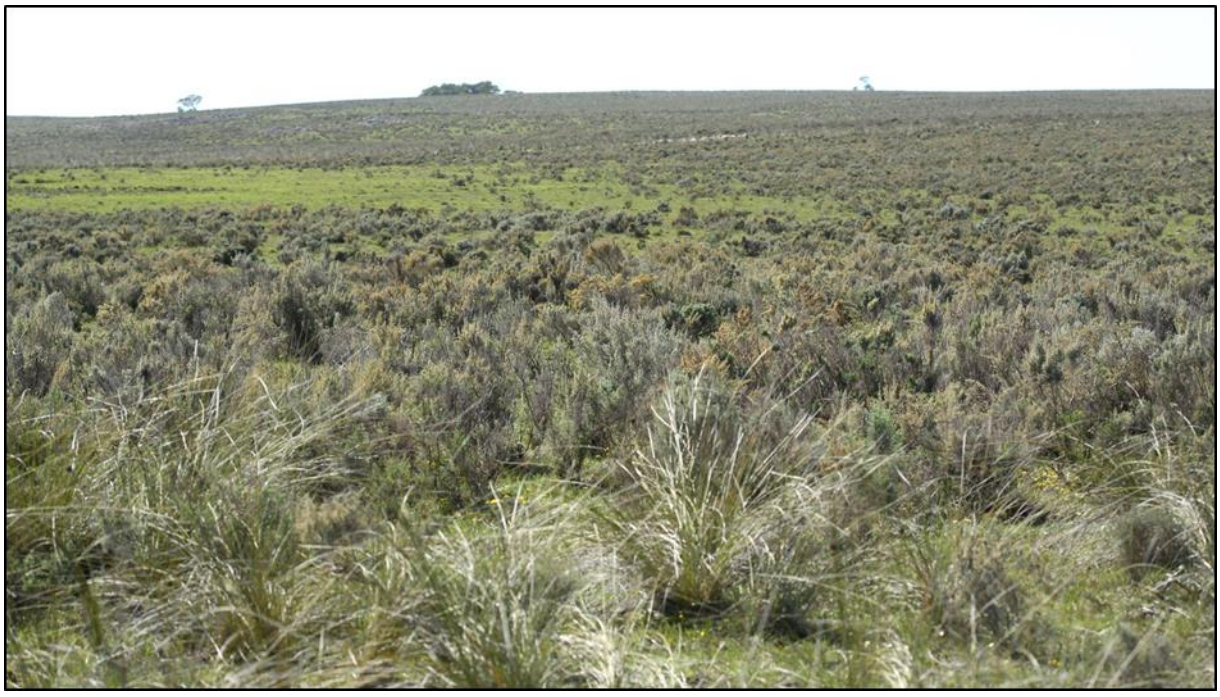

Figure 7: Highly degraded Tsitsikamma Sandstone Fynbos in the north of the Impofu West Wind Farm (Todd, 2017)

The ecologist also considered mammal, reptile and amphibian animal communities during his site visits. Due to the transformed nature of most of the site, fewer mammals occur than would have naturally. The site has not been well sampled in the past for reptile biodiversity, and seven species were observed at the site. There are numerous earth dams, wetlands and drainage lines present at the site which represent the most important habitats for amphibians, and these areas have been well-buffered.

Potential Impacts of the proposed project on the terrestrial ecology of the study area during construction, operation and decommissioning will largely relate to the loss of currently intact ecological habitat and the transformation of the area, loss of vegetation and Species of Special Concern (SCC) and alien plant invasion following decommissioning. It is recommended that a pre-construction walk-through of the development footprint

to further refine the layout and reduce impacts on SCC through micro-siting of the turbines and access roads is instituted. It is also recommended that the development footprint is minimised as far as possible and disturbed areas rehabilitated after construction. Areas identified as having high fauna importance must be avoided to mitigate the identified impacts.

Aquatic Ecology

The project falls within the K80E, K80F and K90D quaternary catchments, within the South Eastern Coastal Belt Ecoregion located within the Mzimvubu-Tsitsikamma Water Management Area (WMA7). Natural run-off from the site will eventually flow into the Tsitsikamma River, Klipdrift River and Krom River. The aquatic specialist identified wetlands, drainage lines, man-made systems such as dams, reservoirs and irrigation balancing dams as aquatic features found on site. The site is characterised by perennial, non-perennial watercourses and drainage lines. The presence of these watercourses will require specific site management with regards to maintaining the water quality and ecosystem services.

The main potential aquatic ecology impacts arising from the construction and operation of the proposed project are related to loss of aquatic species of concern and the loss of natural wetlands on site, loss of functional wetlands and riparian systems that provide ecosystem services within the site and increased surface run-off. To mitigate the potential impacts on the site aquatic features a final pre-construction walkdown is recommended as part of a Plant Search and Rescue plan. It is also recommended that good housekeeping is exercised during construction activities to protect the aquatic features and the management of stormwater run-off must be addressed in the design of the facility.

Bats

As required by South Africa's Good Practice Guidelines for Surveying Bats and Wind Energy Facility Developments, a bat specialist went on site in November 2017 and March 2018 for pre-construction monitoring. The intensive 12-month sampling period is on-going and will be undertaken for each of the four seasons of the year.

Eight bat species have been confirmed on the consolidated Impofu Wind Farms site (Egyptian Free-tailed bat, Cape serotine, Natal long-fingered bat, Long-tailed serotine, Geoffroy's horseshoe bat, Temmink's myotis, Dusky pipistrelle and Yellow-bellied house bat). None of the bat species are classified as threatened (endangered or vulnerable) by conservation bodies, but they provide a high value to the local ecosystems in which they live. For example, the Egyptian free-tailed bat plays an important role in pest control. The presence of bats in an environment is largely connected to areas providing roosting (sleeping) and foraging (eating) habitats. Open watercourses and certain vegetation types providing insect habitat would be indicators of potential foraging sites.

Although most bats are highly capable of advanced navigation by echolocation and excellent sight, they are at risk of physical impact with the blades of wind turbines. The impacts on bat sensitivity that could potentially result from the proposed construction and operation of the proposed Impofu West Wind Farm are specifically in relation to the potential increase of bat mortalities due to moving turbines and bat habitat destruction and disturbance. To avoid significant negative impacts to bats during the operational phase, avoidance is recommended. This was achieved as far as possible by the original bat sensitivity map produced by the bat specialist prior to the Pre-Application Phase, which indicated the potential roosting and foraging areas as No-Go areas for wind turbine placement.

The bat sensitivity map has, however, been updated since the Pre-Application Phase of the project as the 12-month bat monitoring study has progressed, and in response to comments received from I&APs during the Pre-Application Phase. The updated sensitivity map has led to some turbines falling within the new No-Go areas. Some further turbine layout adjustments are thus required to accommodate the updated bat sensitivity map.

The mitigation that will have the biggest impact on reducing this significance rating is moving the turbine locations that are now situated in the new No-Go areas out of these areas. In addition to this, a 12 month pre-construction monitoring period and passive bat activity monitoring on the site (which is at present about half way), remains the foremost means of identifying and assessing the potential impacts on bats.

Avifauna

As with the bats, a 12 month pre-construction monitoring period is required. The bird monitoring period commenced in June 2017 by an avifaunal specialist, which involved four site visits during the 12 month period, representing all four seasons. This monitoring period has now been completed. The purpose of the monitoring period is to record data on bird species on site and the spatial patterns in bird flight movement. This seasonal sampling provided the specialist with the opportunity to undertake monitoring in summer (when summer migrants are present); winter (when raptors breed and Blue Cranes flock); spring (when summer migrants are arriving on site and many species start to breed); and autumn (when summer migrants are leaving, and many raptors are preparing to breed).

A total of 190 bird species were recorded on the consolidated Impofu Wind Farms site, with a peak in species richness in summer (149), followed by spring (143), autumn (127) and winter (113). Of the 190 bird species, a total of 84 small terrestrial bird species and a total of 15 large terrestrial species and raptors were recorded on the Impofu Wind Farms site. Based on these records, nine priority bird species were classified for the assessment of the consolidated site. The selection was based on the regional conservation status of the species, and whether they are Red Listed or otherwise important species (the small bird community was not considered topmost priority). The nine priority species are: Denham's Bustard, White-bellied Korhaan, Blue Crane, Black Harrier, African Marsh-Harrier, Martial Eagle, African Fish-Eagle, Jackal Buzzard and White Stork. The nearest Important Bird Areas are located approximately 31 km north (Kouga-Baviaans) and 31 km west (Tsitsikamma National Park) of the proposed Impofu West Wind Farm.

The Martial Eagle is a species of potential concern for the Impofu Wind Farms project site. The confirmed presence of a Martial Eagle nest, approximately 2km north of the original Impofu Wind Farms site boundary, has had significant implications for the proposed development. To avoid risks to these eagles a 6-km radius buffer around the nest site was declared a No-Go area during the design phase.

The potential impacts on avifaunal sensitivity that could potentially result from the proposed construction and operation of the proposed wind farm were specifically in relation to the potential increase of collisions with wind turbines which is a direct mortality factor, habitat destruction and disturbance as well as displacement and barrier effects presented by the wind turbines. To avoid potential significant negative impacts on avifauna during the operational phase an avifaunal walk down pre-construction is recommended to confirm the final turbine layout and identify any sensitivities that may arise between environmental authorisation and the construction phase. It is also recommended that monitoring of the breeding status of Martial Eagles be conducted in all breeding seasons post acceptance of the project as preferred bidder (to establish baseline) and including during and post construction. Furthermore, if Blue Crane turbine or power line collision fatalities occur during operation because of livestock feeding points, this will need to be mitigated, probably by restricting farmers from feeding too close to turbines and power lines.

Agriculture

The current land use on site is agriculture. The site and surrounding areas are currently used for intensive, high production dairy farming with some areas of cultivated, kikuyu based pasture and additional fodder crops, both under irrigation, as well as non-irrigated. From an agricultural perspective, the potential impacts largely relate to the permanent loss of agricultural productive land, or potentially productive land that will be occupied by the wind farm infrastructure and will become unavailable for agricultural use. These potential areas to be impacted are limited to only a small proportion of the total surface area of the site. In mitigating the negative impacts, the wind farm footprint has entirely avoided centre pivot irrigated lands, which were classified as No-Go areas. Based on the agricultural investigation, the Impofu West Wind Farm is likely to have continued positive impacts on the agriculture of the area rather than threatening agriculture, for example improved farm security, improved shared infrastructure and increased financial security for the farmers.

Socio-economic

The main socio-economic activity on the site is commercial dairy farming. Currently, four operational wind farms are located in close proximity to the site, namely: Kouga Wind Farm, Gibson Bay Wind Farm, Tsitsikamma Community Wind Farm and Jeffreys Bay Wind Farm. The proposed development could provide a significant amount of new economic activity, both during the construction phase as well as during the on-going operation of the wind farm. From the preliminary socio-economic findings, it is evident that the development could have a significant impact on the local and regional society and economy. The proposed development would provide for a variety of potential positive and negative impacts during the construction and on-going operation of the development, which will be investigated further, through interviews of identified stakeholders during the EIA Phase.

The potential negative socio-economic impacts include those relating to:

- Disturbance (visual and noise) to the area;
- Disruption (nuisance, safety, security) during construction;
- Changes in the visual environment on the local tourism industry and agriculture sector;
- Change in property and land value; and
- Impact on infrastructure (use of heavy equipment, including damage to roads, safety and dust).

The potential positive socio-economic impacts include those relating to:

- Stimulation of national and local economy;
- Temporary employment opportunities will be created nationally and locally;
- Skills development programmes;
- Improving the standard of living of households of permanent employees; and
- Local and regional economic and social development benefits.

Palaeontology

Palaeontological resources include fossilised materials such as buried fossils and rock units. Since some potential heritage material is buried, it is often only found during the construction phase of a project, a palaeontologist conducted a site visit in September 2017 and found a range of shallow marine to nearshore fluvial and estuarine trace fossils, mainly from the Western Cape outcrop area. The relevant palaeontological survey indicates that the palaeontological sensitivity of the Humansdorp region is generally low as far as the bedrocks are concerned, especially because of the high levels of chemical weathering and tectonic deformation observed within the area.

Two quarry sites of geoheritage / palaeontological interest were identified by the palaeontologist near the Rosenhof farmstead (within the Impofu West site boundary). However, the two quarry sites will not be directly impacted by the proposed wind farm development. The sites show traces of equivocal fossils which are not

regarded as of high conservation significance and will not be impacted by the development footprint. Apart from the trace fossil site in one of these existing quarries, near Rosenhof farmstead, no significant fossil sites were recorded during the field survey of the Impofu West Wind Farm project area and the overall palaeontological sensitivity of the area is rated as low.

The main potential palaeontological impacts arising from the construction of the proposed project are related to the disturbance and damage of fossil heritage. To mitigate the impact on palaeontological features onsite recording and sampling of significant fossils (if found) is to be undertaken by a professional palaeontologist and any potential fossil finds reported to the Eastern Cape Provincial Heritage Resources Agency (ECPHRA).

Archaeology

Archaeological resources include rock paintings, graves and stone tools. Based on previous studies undertaken in the surrounding environment, it is known that the area contains heritage resources including a variety of historic period structures, associated cultural materials, graves and graveyards. An archaeologist surveyed the site between March and April 2018 and identified significant archaeological features which may be impacted by the development of the project. These include:

- Historic period disused feeding / watering trough made of modern materials (IW4) – not conservation worthy and no mitigation is required;
- Stone Age quarrying / flaking of outcropping quartzite (IW5) – not impacted by the current design layout, but should be fenced as a precautionary measure during construction;
- Late Stone Age and Middle Stone Age stone artefacts in sand quarry (IW6)- no mitigation is required, but archaeological monitoring during construction is recommended; and
- *In situ* Middle Stone Age and Early Stone Age stone artefacts in quarry (IW7) – avoided by current design layout, but archaeological monitoring during construction is recommended.

Figure 8: Example of disused feeding / watering systems (IW4) and Stone Age quarrying / flaking of outcropping quartzite (IW5)found on site (Nilssen, 2017)

The potential impacts from this project therefore relate to the archaeological finds listed above. The clearing of vegetation and construction activities associated with the project are therefore considered a potential risk to these resources. Furthermore, the site lies within the pre-colonial cultural landscape, identified as an archaeologically sensitive area. Based on the Archeological field investigation a strip along the coast of up to 5 km is considered to be one of the richest archaeological and pre-colonial cultural landscapes in South Africa. To mitigate negative impacts on the pre-colonial cultural landscape archaeological monitoring of this area within the site is recommended. The relevant provincial heritage agency (ECPHRA) has indicated that a full HIA is not required, only an archaeological study (and Palaeontological study) is to be submitted for comment. The proposed development

triggers Section 38 of the National Heritage Resources Act (Act 25 of 1999; NHRA) and the Archaeological Impact Assessment (AIA) will ensure compliance with the heritage legislation.

Noise and shadow flicker

Wind turbines are responsible for both mechanical and aerodynamic noise (from the wind turbine blades moving through the air). Shadow-flicker occurs when the rotation of wind turbine blades results in alternating periods of shadow and light to a receptor. Shadow-flickering will only occur when the position of the turbine is between the sun and the receptor, and only when the turbine is operating and the sun is shining.

Noise levels are affected by various factors such as topography, land use, vegetation cover and roads. According to the noise specialist, the potential issues and impacts associated with environmental noise will mostly be experienced during the construction phase of the project. Related noise would result from the equipment being used (e.g. excavators, graders, bulldozers, etc.) and the activities undertaken (e.g. excavations, batching plants, etc.), as well as traffic on site, and to and from the site. During operation the mechanical noise produced by wind turbines is likely to have an impact on neighbouring communities and nearby sensitive receptors, but the operational noise from the Impofu West Wind Farm is expected not to exceed the 45 dB(A) noise level threshold required for rural areas at any of the sensitive receptors within the Impofu Wind Farms site boundary. Noise related impacts during the decommissioning phase would be similar to those experienced during the construction phase.

It is anticipated that sensitive receptors that would experience shadow flicker impacts are those close to or within the neighbouring Tsitsikamma Community Wind Farm, but the impact is expected to be very limited. Some receptors within the Impofu West Wind Farm site boundary are also expected to be impacted by shadow flicker, but these impacts are relatively easy to mitigate and reduce, and are not seen as a major issue.

Visual

The visual specialist undertook a site visit in October 2017 to determine the scope of the visual impact issues. Based on the visual investigation the potential visual impacts significant to the project are related to the construction and operation phases. These include visual intrusions of the construction activities such as construction traffic, cranes, dust, wind turbines, the substation, operation and maintenance buildings, lighting and the visual scarring of the landscape by earthworks. Given the scale of the proposed wind farm and the exposed nature of the site, the Visual Specialist indicated that the visual impacts of the site are considered to be at the municipal and local level. It is anticipated that the rural sense of place would be affected by the wind farm activities and associated infrastructure, particularly when considering the potential cumulative visual impacts.

Cumulative impacts

A number of scenarios were considered in assessing the cumulative impacts of the proposed wind farm. This considered the Impofu West Wind Farm in conjunction with the past, present and future wind farm projects in the area which have the potential for cumulative impacts on the same environmental receptors. The area of influence of the cumulative study was a 30 km radius. Scenario 1 considered impacts from Impofu West Wind Farm on the baseline, in combination with the impacts of Impofu North and Impofu East Wind Farms. Scenario 2 considered impacts from all three Impofu wind farms and associated infrastructure on the baseline in addition to the proposed Oyster Bay, Banna Ba Pifhu and Ubuntu Wind Farms which are those with a valid environmental authorisation located within a 30 km radius.

The impact of the proposed project in combination with other wind farm projects, and past, present and future in the study have been assessed by each specialist discipline and depend largely on whether the project specific mitigation can be applied. Many of the impacts are rated as negligible or minor negative. However, the direct mortality of birds through collision with turbines has been assessed as high negative significance and is based on a worst-case scenario that can be confirmed during operational monitoring.

No other high or major impacts, which will exceed a critical threshold, are expected through the development of the project. However, all efforts to mitigate project specific impacts should be pursued and contribution to the Greater Kromme Stewardship Initiative should be considered to contribute to local bioregional conservation efforts.

WHAT IS THE SIGNIFICANCE OF THE IDENTIFIED ENVIRONMENTAL IMPACTS

Table 2: Summary of identified impacts for the proposed project and associated infrastructure

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
Pre-construction			
No major impacts are anticipated to occur with the pre-construction activities. It is important however that the implementation of mitigation measures begin in the pre-construction phase, as many of the impacts associated with the construction of the proposed project infrastructure can be avoided. Pre-construction impacts were comparatively assessed in detail during the screening process and limitation of impacts were explored by considering sensitive areas on the site for exclusion from the development footprint.			
Construction			
Terrestrial Ecology	Construction impacts on vegetation and plant species of conservation concern (SCC).	Moderate (-)	Minor (-)
	Direct and indirect faunal impacts during construction	Minor (-)	Minor (-)
Aquatic Ecology	During construction vegetation near or within watercourses may be disturbed which may contain species of special concern.	Minor (-)	Negligible (-)
	Construction could result in the loss of wetlands that are still functional and provide an ecosystem service within the site and/or any required access road upgrades (e.g. DR01774)	Minor (-)	Negligible (-)
	Construction could result in the loss of riparian systems and watercourses that are still functional and provide an ecosystem service within the site and or any required access road upgrades (e.g. DR01774)	Minor (-)	Negligible (-)
	During construction, contamination of watercourses due to waste generation and accidental spills of materials stored and handled with impacts on water quality.	Minor (-)	Negligible (-)
Bats	During construction some very limited foraging habitat will inevitably be destroyed to clear ground for the Wind Farm.	Negligible (-)	Negligible (-)
Avifauna	Destruction of bird habitat during construction.	Minor-Moderate (-)	Minor-Moderate (-)
	Disturbance of birds during construction.	Negligible (-)	Negligible (-)
Agriculture	Loss of agricultural land use.	Minor (-)	Minor (-)
	Discontinuation of farming activities.	Negligible (-)	N/A
	Interference with farming operations	Negligible (-)	Negligible (-)
	Damage to natural agricultural resource base.	Negligible (-)	Negligible (-)
	Depletion of potential agricultural water resources.	Negligible (-)	N/A
	Increased financial security for farmers.	Moderate (+)	N/A
	Improvements to shared infrastructure.	Minor (+)	Minor (+)

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
	Improved farm security.	Minor (+)	N/A
Socio-economic	Temporary stimulation of the national and local economy.	Moderate (+)	Moderate (+)
	Temporary increase of new employment opportunities in the national and local economies.	Moderate (+)	Moderate (+)
	Contribution of skills development programmes.	Minor (+)	Moderate (+)
	Temporary increase in household earnings.	Minor (+)	Minor (+)
	Temporary increase in government revenue through higher personal income tax, VAT, companies tax	Minor (+)	Minor (+)
	Impact on the sense of place.	Minor (-)	Minor (-)
	Impact on the local tourism industry.	Negligible (-)	Negligible (-)
	Temporary increase in social conflicts associated with the influx of people.	Minor (-)	Negligible (-)
	Impact on economic and social infrastructure	Minor (-)	Negligible (-)
	Impact on actual and perceived property and land values in the immediately affected area.	Minor (-)	Negligible (-)
Palaeontology	During construction, damage, disturbance and destruction of fossil heritage.	Negligible (-)	Negligible (-)
Archaeology	Impact on pre-colonial cultural landscape along 5 km wide coastal strip	Moderate (-)	Minor (+)
	Impact on surrounds of quarry with in situ ESA and MSA stone artefacts	Major (-)	Minor (+)
Noise and shadow Flicker	Construction noise.	Minor (-)	Minor (-)
Visual	Visual intrusion on the rural landscape and scenic resources.	Moderate (-)	Minor (-)
Operation			
Terrestrial Ecology	Operational impacts on fauna.	Moderate (-)	Minor (-)
	Impacts on Critical Biodiversity Areas during operation.	Moderate (-)	Minor (-)
Aquatic Ecology	Impact on aquatic systems through possible increase in surface water runoff - downstream erosion and sedimentation during operation.	Minor (-)	Negligible (-)
Bats	Bat mortalities due to moving turbine blades during operation.	Major (-)	N/A until 12-month monitoring is complete
	Increased bat mortalities due to light attraction during operation.	Moderate (-)	Negligible (-)
Avifauna	Disturbance of birds during operation.	Minor (-)	Minor (-)
	Displacement of birds from site during operation.	Negligible (-)	Negligible (-)
	Bird fatalities through collision with wind turbine blades.	Moderate (-)	Moderate (-)
	Bird collision and electrocution on overhead powerlines during operation.	Minor (-)	Negligible (-)
Socio-economic	Sustainable increase in national and local government revenue	Moderate (+)	Moderate (+)

Environmental aspect	Impact	Pre-mitigation	Post-mitigation
	Sustainable increase in production and GDP nationally and locally	Moderate (+)	Moderate (+)
	Sustainable employment positions nationally and locally	Moderate (+)	Moderate (+)
	Skills development of permanently employed workers	Moderate (+)	Moderate (+)
	Negative changes to the sense of place	Negligible (-)	Negligible (-)
	Improvement of the livelihoods of the household's dependant on the local agricultural sector	Moderate (+)	Moderate (+)
	Improved standard of living for benefiting households	Minor (+)	Minor (+)
	Local economic and social development benefits derived from the wind farm's operations.	Moderate (+)	Moderate (+)
	Impact on local tourism industry.	Minor (-)	Negligible (-)
	Provision of electricity for future development.	Moderate (+)	Moderate (+)
	Impact on the livelihoods of the households dependant on the local tourism	Minor (-)	Negligible (-)
Noise and shadow Flicker	Operational noise.	Negligible (-)	Negligible (-)
	Shadow-flicker impact during the operational phase.	Minor (-)	Negligible (-)
Visual	Visual intrusion of the wind turbines on the rural landscape, settlements, scenic resources and overall sense of place	Moderate-Major (-)	Moderate-Major (-)
	Visual intrusion of associated infrastructure on the rural farming landscape	Moderate (-)	Minor (-)
	Visual intrusion of lights at night on dark skies	Moderate (-)	Moderate-Minor (-)
Decommissioning			
Terrestrial Ecology	Alien plant invasion following decommissioning.	Minor (-)	Minor (-)
	Faunal impacts due to decommissioning.	Minor (-)	Minor (-)
Noise and Shadow Flicker	Decommissioning noise.	Minor (-)	Minor (-)
Visual	Visual intrusion on the rural landscape and sense of place during decommissioning.	Moderate (-)	Minor (-)

PUBLIC PARTICIPATION PROCESS

Stakeholder engagement is an important component to ensure that a project is undertaken in a fair, open, transparent and inclusive way. South African EIA legislation and guidelines have formalised stakeholder engagement in the EIA process and refer to it as the Public Participation Process (PPP). PPP therefore forms an integral part of this investigation and enables parties that are directly or indirectly affected by the project (such as landowners, organs of state and other key stakeholders such as conservation groups), or simply interested in the project (such as the greater public), to participate in the process. Within the PPP process, these stakeholder groups are therefore referred to as interested and affected parties (I&APs).

This Draft Scoping Report has been compiled to meet the requirements of NEMA[2], with the primary aim of informing I&APs of the proposed project and allowing them an opportunity to ask questions and comment on the project before the Final Scoping Report is submitted to DEA.

The contributions of I&APs are valued and provide important input into the EIA process. The PPP is designed to objectively enable I&APs to:

- Ask questions and get clarification on any aspect of the project;
- Raise issues of concern and make suggestions for alternatives and enhanced benefits;
- Contribute local knowledge;
- Verify that their issues have been captured and considered by the technical investigations; and
- Comment on the findings of the Scoping Report and EIA Report.

The PPP is designed to solicit a joint effort by stakeholders to produce better decisions than if they had acted independently. Successful PPP therefore provides an opportunity for I&APs to gain more knowledge about the proposed project, to provide input through the review of documents / reports, and to voice any issues of concern at various stages throughout the EIA process (as illustrated above in Figure 6). This process ultimately facilitates better decision-making.

All registered I&APs are notified of the opportunity to review reports and if, during this period, I&APs have any comments, they may send them to the EAP who will ensure that a response is provided and that amendments are made to the reports where required. For the Scoping Phase, the 30-day PPP comment period on the Draft Scoping Report is from **11 October until 9 November 2018**. The stakeholder actions to date are as follows:

- **A pre-application** meeting was held with the DEA on 17 October 2017 to gather information for use in the Plan of Study for the EIA process and Terms of Reference for the specialist studies. A further **pre-application meeting** was held with the DEA on 11 September 2018.
- **Advertisements** in English, Afrikaans and IsiXhosa were placed in a provincial newspaper the Eastern Cape Herald on 30 July 2018, and local newspaper Kouga Express on26 July 2018, notifying the broader public of the process and inviting them to register. The project will be re-advertised at the EIR Phase to notify the broader public of the commenting period associated with that phase and of the dates of the respective public meetings.
- **Site notices** in English, Afrikaans and IsiXhosa were erected on site; and at various community facilities in December 2017. These were updated with dates of public open house meetings during the Pre-Application Phase and will be further updated for the Draft EIR phase.
- A **Background Information Document (BID)** was compiled in simple English, Afrikaans and isiXhosa to notify potential stakeholders of the proponent's intended activities, provide information on the proposed project, set out the EIA process and let stakeholders know how they can participate in the project.
- **Written notices** Letters and/or emails were issued to all identified landowners, adjacent landowners and key stakeholders, between December 2017 and August 2018, informing them about the proposed project and opportunity to comment at the respective phases on the respective reports. Included with this correspondence was a copy of the BID. Written notices will be sent to all I&APs for all future phases of the project, inclusive of a Non-Technical Summary.
- A **Summary Pamphlet** was written in simple English, Afrikaans and isiXhosa and was distributed to landowners to distribute to any people residing on their property during the Screening and Iterative Design Phase.

[2] Appendix 2 of amended EIA Regulations (GN R982) of NEMA lists the content required in a Scoping Report. This has been listed for cross checking purposes on the page preceding the table of contents.

- **Focus group meetings** were held with authorities, landowners and key stakeholders from 6-8 February 2018 with regards to the proposed project. **Public meetings** were held during the Pre-Application Phase (in the form of open days) in August 2018. Further public meetings will be held again at the Draft EIR Phase (anticipated to be in March 2019). **Meetings with relevant authorities** will be held as and when necessary.

All I&APs are encouraged to submit comments/issues/concerns on the proposed Impofu West Wind Farm Project to the Aurecon team (Table 3), from **11 October 2018** to **9 November 2018.**

Table 3: Stakeholder engagement team

	Zoë Palmer	Ilse Aucamp
Telephone number	021 526 6069	082 828 0668
Fax number	021 526 9500	
Email address	ppp@aurecongroup.com	ilsea@lantic.net
Postal address	PO Box 494, Cape Town, 8000	
Project document website	https://www.aurecongroup.com/public-participation/projects/impofu-windfarms-grid-redcap	

PROPOSED WAY FORWARD

Following the Draft Scoping public comment period, the Final Scoping Report will be updated where necessary. The Public Participation Report (Appendix C of the Scoping Report) will be updated and included in the Final Scoping Report for submission to the DEA. Thereafter, the DEA will issue a response on the Final Scoping Report and indicate whether or not the project can proceed to the EIR Phase.