

## **ANNEXURE 1**

### **PHASE 2 OF THE WIND AND SOLAR PV STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR THE IDENTIFICATION OF RENEWABLE ENERGY DEVELOPMENT ZONES FOR SOUTH AFRICA.**

#### **TERMS OF REFERENCE FOR SPECIALISTS:**

#### **Avifaunal Impact Assessment**

**August 2018**

#### **1. PURPOSE**

This document provides a brief introduction to the terms of reference for an independent, suitably qualified service provider to assist the Council for Scientific and Industrial Research (CSIR) in preparing a Strategic Issue Chapter (in the form of a specialist assessment report) on the sensitivities associated with Avifaunal in the draft focus areas as delineated as part of Phase 2 of the Wind and Solar PV Strategic Environmental Assessment. The specialist assessment aims to guide the refinement of the draft focus areas which will be presented as draft Renewable Energy Development Zones to the Department of Environmental Affairs.

#### **2. BACKGROUND**

The Department of Environmental Affairs has committed to contribute to the implementation of the National Development Plan and National Infrastructure Plan by undertaking Strategic Environmental Assessments to identify adaptive processes that integrate the regulatory environmental requirements for Strategic Integrated Projects<sup>1</sup> (SIPs) while safeguarding the environment. The first iteration of the wind and solar photovoltaic (PV) SEA was accordingly commissioned by the Department of Environmental Affairs in 2013, in support of SIP 8, which aims to facilitate the implementation of sustainable green energy initiatives.

The SEA identified areas where large scale wind and solar PV energy facilities can be developed in a manner that limits significant negative impacts on the environment, while yielding the highest possible socio-economic benefits to the country. These areas are referred to as Renewable Energy Development Zones (REDZs). A total of eight REDZs were identified during the first iteration of the wind and solar photovoltaic (PV) SEA covering a total area of approximately 80 000 km<sup>2</sup> across five provinces (Western Cape, Northern Cape, Eastern Cape, North West and Free State) as illustrated in Figure 1.

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<sup>1</sup> <http://www.economic.gov.za/picc/sips-chairpersons>

The REDZs also provide priority areas for investment into the electricity grid for which a Strategic Environmental Assessment was also commissioned in 2014, namely the Electricity Grid Infrastructure (EGI) SEA. The EGI SEA identified five power corridors as illustrated in Figure 1 that will enable the efficient and effective expansion of key strategic transmission infrastructure designed to satisfy national transmission requirements up to 2040.

The gazetting of the outputs of these two SEAs (i.e. the eight REDZs and five power corridors) was approved by Cabinet on 17 February 2016<sup>2</sup>. The draft gazette for public review and comments was released on 13 April 2017 for a 30 days comments period and the REDZs and Power Corridors gazetted for implementation 16 February 2018.

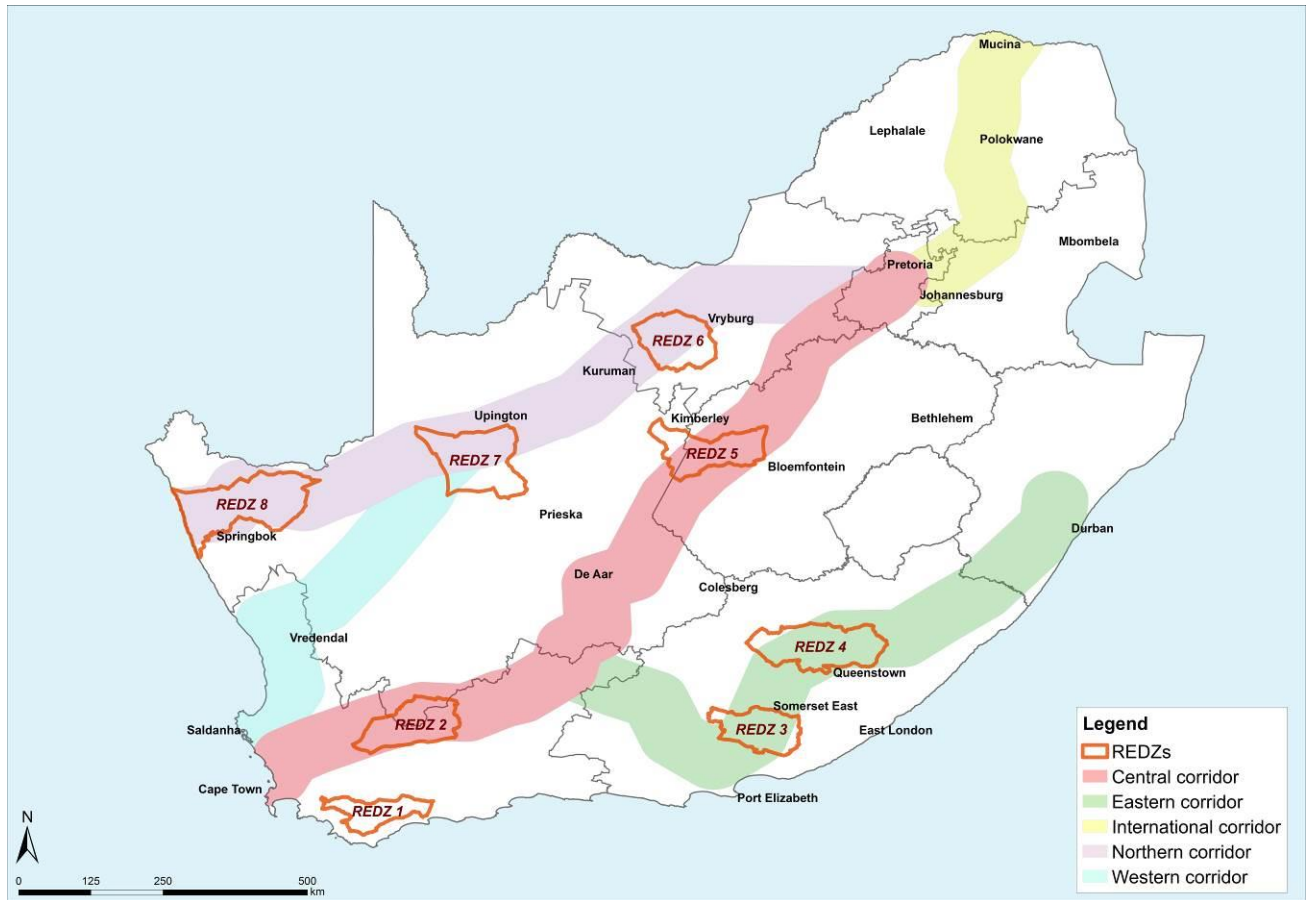


Figure Error! No text of specified style in document.Error! No text of specified style in document.-1: REDZs and Power corridors

Phase 2 of the wind and solar PV Strategic Environmental Assessment was commissioned by the Department of Environmental Affairs in order to identify additional REDZs, in particular from analysing new wind and solar PV resource data available at a national scale, and the potential to identify new REDZs in all nine provinces of South Africa, as well as to review the environmental four tiers sensitivity data/maps prepared during Phase 1 based on most recent and

<sup>2</sup> <http://www.gov.za/speeches/statement-cabinet-meeting-17-february-2016-18-feb-2016-0000>

publicly available datasets for the strategic issues considered for the existing focus areas at national scale. This process will aim to provide additional anchor points for grid expansion and dedicated energy generation areas from which electricity can be collected, thereby allowing strategic investment.

The second iteration of the wind and solar PV Strategic Environmental Assessment is undertaken to allow for the efficient and effective implementation of wind and solar photovoltaic energy projects within the timeframes of the country's climate change commitments and to provide energy security for South Africa through the development of sustainable and renewable energy sources. Using most recent scientific information and inputs from experts with extensive experience in the sector of renewable energy, the SEA aims to assist government with creating a framework and guiding principles that will inform responsible decision-making for the development of wind and solar PV energy facilities in South Africa. For more information, please visit the project website at <https://redzs.csir.co.za/>

The SEA integrates environmental and sustainability objectives into strategic decision-making, rather than focusing merely on the assessment of impacts. As such it is a pro-active decision support tool capable of shaping future development and its associated impacts.

The national wall to wall environmental sensitivities map is based on the following environmental attributes (Table1).

Table 1: National wall to wall environmental sensitivities map

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)
Protected Areas	SAPAD - Q2, 2017 and South African Conservation Areas Database (SACAD) -Q1,2017	National Parks	Very high sensitivity	feature	Very high sensitivity	feature
		Nature Reserves	Very high sensitivity	feature	Very high sensitivity	feature
		World Heritage Sites (Core)	Very high sensitivity	feature	Very high sensitivity	feature
		Mountain Catchment Areas (natural)	Very high sensitivity	feature	Very high sensitivity	feature
		Protected Environments (natural)	Very high sensitivity	feature	Very high sensitivity	feature
		Forest Nature Reserve	Very high sensitivity	feature	Very high sensitivity	feature
		Forest Wilderness Area	Very high sensitivity	feature	Very high sensitivity	feature
		Special Nature Reserve	Very high sensitivity	feature	Very high sensitivity	feature
		10 KM buffer around National Parks	High sensitivity	feature	High sensitivity	feature
		5KM buffer around Nature Reserves	High sensitivity	feature	High sensitivity	feature
		Buffer around World Heritage Sites	High sensitivity	feature	High sensitivity	feature
Conservation Areas	SACAD-Q1, 2017 and Provincial Private Reserves/Conservation Areas	Biosphere reserves (Not already protected )	Medium sensitivity	feature	Medium sensitivity	feature
		Botanical gardens	Medium sensitivity	feature	Medium sensitivity	feature
		Ramsar Sites (not already protected)	High sensitivity	feature	High sensitivity	feature
		Game farms and Private Reserves	High sensitivity	feature	High sensitivity	feature
Critical Biodiversity Areas (CBAs) categories	Provincial	CBA	Very high sensitivity	feature	Very high sensitivity	feature
		ESA	High sensitivity	feature	Medium sensitivity	feature
Threatened Ecosystems	South African National Biodiversity Institute (SANBI) 2010	CR	Very high sensitivity	feature	Very high sensitivity	feature
		EN	High sensitivity	feature	High sensitivity	feature
		VU	High sensitivity	feature	High sensitivity	feature
Bats	Roost dataset from SABAAB (Kate Mc Ewan)	colony of 1 – 50 Least Concern bats + colony of 1 – 50 Low Risk Conservation Important bats	Very high sensitivity	500 m	N/A	N/A

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)
		colony of 50 – 500 Least Concern bats + colony of 50 - 500 Low Risk Conservation Important bats + colony of 1 – 50 Med-High Risk Conservation Important bats	Very high sensitivity	1 km	N/A	N/A
		colony of >500 High Risk Least Concern bats + colony of 50 - 500 Med-High Risk Conservation Important bats + colony of 500 - 2000 Low Risk Conservation Important bats	Very high sensitivity	2.5 km	N/A	N/A
		colony of 500 - 2000 Med-High Risk Conservation Important bats	Very high sensitivity	10 km	N/A	N/A
		colony of >2000 Bats of any status or risk level	Very high sensitivity	20 km	N/A	N/A
	Ecoregions	KwaZulu-Cape coastal forest mosaic	Very high sensitivity	feature	Very high sensitivity	feature
		Maputaland-Pondoland bushland and thickets	Very high sensitivity	feature	Very high sensitivity	feature
		Maputaland coastal forest mosaic	Very high sensitivity	feature	Very high sensitivity	feature
		Zambezi and Mopane woodlands	Very high sensitivity	feature	Very high sensitivity	feature
	REDZs Phase 1 SEA: All_Bats_Absolute_Dolomite and Limestone	Dolomite and Limestone	Very high sensitivity	feature	N/A	N/A
	REDZs Phase 1 SEA: All_Bats_Absolute_Rivers and Wetlands	Rivers and Wetlands	Very high sensitivity	feature	N/A	N/A
	REDZs Phase 1 SEA: All_Bats_Absolute_Forest	Forests	Very high sensitivity	feature	N/A	N/A
	REDZs Phase 1 SEA: All_Bats_Absolute_Cropland	Cropland	Very high sensitivity	feature	N/A	N/A
	Birds	BirdlifeSA exclusions Phase 1 SEA	Priority colonies	Very high sensitivity	feature	High sensitivity
Transkei vulture IBA			Very high sensitivity	feature	High sensitivity	feature

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)	
		Bearded vulture nest	Very high sensitivity	feature	High sensitivity	feature	
		Flyway/Verloornvlei	Very high sensitivity	feature	High sensitivity	feature	
		IBA exclusion	Very high sensitivity	feature	High sensitivity	feature	
		Lesser Kestrel	Very high sensitivity	5 km	High sensitivity	1km	
		Protected Areas in IBA	Very high sensitivity	feature	High sensitivity	feature	
		Potberg Cape Vulture	Very high sensitivity	feature	High sensitivity	feature	
		Black harrier roost sites	Very high sensitivity	3km		N/A	
		Barlows lark distribution					
		Southern Bald Ibis	Very high sensitivity	10km	N/A	N/A	
		Saldanha Flyway	Very high sensitivity	feature	High sensitivity	feature	
		Verreaux Eagles Nests	Very high sensitivity	3km	N/A	N/A	
		Ludwig Bustard	High sensitivity		High sensitivity		
		Red Lark Distribution	High sensitivity		Very high sensitivity		
		Wetlands more than 2ha (2km) and Mainstem Rivers (500m)					
		VULPRO	VULPRO cape vulture colonies	Very high sensitivity	50km	High sensitivity	5km
			VULPRO cape vulture roosts	Very high sensitivity	50 km	High sensitivity	3km
			VULPRO cape vulture restaurants	Very high sensitivity	10km	High sensitivity	feature
	NMMU	NMMU cape vulture roost sites	Very high sensitivity	50 km	High sensitivity	3km	
	KZN wildlife	Bearded vulture collision risk model	Very high sensitivity	feature	High sensitivity	feature	
<b>Species of conservation concern (Plants, amphibians, reptiles, butterflies)</b>	Endangered Wildlife Trust (EWT), SANBI and BirdLife South Africa	Critical Habitat for highly restricted Species Global Extent of Occurrence < 10 km <sup>2</sup>	Very high sensitivity	feature	Very high sensitivity	feature	
		Confirmed occurrences of rare and threatened species	High sensitivity	feature	High sensitivity	feature	
		Suitable unsurveyed habitat for threatened, rare and data deficient species.	Medium sensitivity	feature	Medium sensitivity	feature	

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)
		No known or expected threatened or rare species.	Low sensitivity	feature	Low sensitivity	feature
<b>National Protected Areas Expansion Strategy</b>	Department of Environmental Affairs (DEA) and Provincial	Protected areas expansion priority areas	High sensitivity	feature	Very high sensitivity	feature
<b>Estuaries</b>	National Biodiversity Assessment (NBA) 2011	All estuaries	Very high sensitivity	feature	Very high sensitivity	feature
<b>Freshwater Feature buffers</b>	NFEPA	500m buffer around Wetlands	Very high sensitivity	500m	Very high sensitivity	500m
		32 m buffer around Rivers	Very high sensitivity	32m	Very high sensitivity	32m
<b>Strategic Water Source Areas (SWSAs)</b>	Council for Scientific and Industrial Research (CSIR)	SWSAs (Natural areas )	Very high sensitivity	feature	Very high sensitivity	feature
<b>Habitat Modification layer</b>	SANBI	Natural areas	Medium sensitivity	feature	Medium sensitivity	feature
		Modified areas	Low sensitivity	feature	Low sensitivity	feature
		Old fields	Low sensitivity	feature	Low sensitivity	feature
<b>Forests (non-protected forest patches from National Forest Inventory)</b>	Department of Agriculture, Forestry and Fisheries (DAFF)	Forests (National Forest Inventory)	Very high sensitivity	feature	Very high sensitivity	feature
<b>UNESCO tentative sites</b>	UNESCO website / SAHRA	UNESCO tentative sites	High sensitivity	feature	High sensitivity	feature
<b>Heritage</b>	SAHRA	Grade I and II sites	Very high sensitivity	1km	Very high sensitivity	1km
		Heritage resources with provisional heritage protection as defined by Section 29 of the Heritage Act [Act 25 of 1999]	Very high sensitivity	TBC	Very high sensitivity	TBC
		Protected areas as defined by Section 28 of the Heritage Act	Very high sensitivity	TBC	Very high sensitivity	TBC
		Burial Grounds and Graves	High sensitivity	TBC	Very high sensitivity	TBC
		Heritage areas as defined by Section 31 of the Heritage Act	High sensitivity	TBC	High sensitivity	TBC
		Heritage Protection Overlay Zones	High sensitivity	TBC	High sensitivity	TBC
		Public monuments and memorials as defined by Section 37 of the Heritage Act	High sensitivity	TBC	High sensitivity	TBC
		Heritage registered sites as defined by Section 30 of the Heritage Act	High sensitivity	TBC	High sensitivity	TBC

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)		
		Grade IIIa to IIIb heritage resources	Medium sensitivity	TBC	Medium sensitivity	50m		
Defence	SANDF	Forward Airfield	Very high sensitivity	10 km	Very high sensitivity	1 km		
					Medium sensitivity	10 km		
		Air Force Bases	Very high sensitivity	28 km	Very high sensitivity	1 km		
			High sensitivity	56 km	Medium sensitivity	28 km		
			Medium sensitivity	111 km				
		High Sites	Very high sensitivity	1km	Very high sensitivity	1 km		
		Military Bases	Very high sensitivity	1km	Very high sensitivity	1 km		
			High sensitivity	10 km				
		Operational Military Bases	Very high sensitivity	1km	Very high sensitivity	1 km		
			High sensitivity	10 km				
		Shooting Ranges	Very high sensitivity	1km	Very high sensitivity	1 km		
			High sensitivity	10 km				
		Military Training Areas	Very high sensitivity	1km	Very high sensitivity	1 km		
			High sensitivity	10 km				
		Ammunition Depots	Very high sensitivity	10km	Very high sensitivity	10 km		
		Bombing Ranges	Very high sensitivity	28km	Very high sensitivity	28km		
			High sensitivity	28 - 56km	High sensitivity	28 - 56km		
			Medium sensitivity	56-111km	Medium sensitivity	56-111km		
		Border Posts	Very high sensitivity	1km	Very high sensitivity	1 km		
		All Other DoD features (Including Naval Bases, Housing, Offices ect)	feature	feature	feature	feature		
		Airports (major, landing strips, small aerodromes)	REDZs 1 SEA dataset and EGI	Major Airports	Very high sensitivity	8 km	Medium sensitivity	8



Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)
	SEA dataset for additional features		High sensitivity	8-15 km		
			Medium sensitivity	15-35 km		
		Landing strips	High sensitivity	8 km	Medium sensitivity	8km
		other civil aviation aerodromes (small aerodromes)	High sensitivity	8 km	Medium sensitivity	8 km
Medium sensitivity	8-15 km					
Civil Aviation	REDZs 1 SEA dataset	Civil Aviation radars	Very high sensitivity	0-15 km	N/A	N/A
			Medium sensitivity	15-35 km	N/A	N/A
		Air traffic control and navigation sites	Medium sensitivity	0-5 km	N/A	N/A
		Danger and restricted airspace	High sensitivity	feature	N/A	N/A
Land Capability	DAFF	Land capability features with values ranging from 11-15	Very high sensitivity	feature	Very high sensitivity	feature
		Land capability features with values ranging from 9-10	High sensitivity	feature	High sensitivity	feature
		Land capability features class 6 to 8	Medium sensitivity	feature	Medium sensitivity	feature
		Land capability features class 1 to 5	Low sensitivity	feature	Low sensitivity	feature
Mining	CGS	Abandoned mines	Low sensitivity	feature	Low sensitivity	feature
		Active mines	Medium sensitivity	feature	Very high sensitivity	feature
		Prospecting rights	Medium sensitivity	feature	Very high sensitivity	feature
		Mining rights	Medium sensitivity	feature	Very high sensitivity	feature
Coastline	Department of Rural Development and Land Reform (DRDLR)	Buffered coastline (1km)	Very high sensitivity	1km	Very high sensitivity	1km
Major roads	SANBI dataset	Major Roads	Very high sensitivity	1km	Very high sensitivity	1km
Telecommunication Towers	REDZs 1 SEA dataset	Sentech High Power Terrestrial Broadcasting Facilities	Very high sensitivity	5km	Medium sensitivity	5km
		Other Communication Facilities	High sensitivity	1km	Medium sensitivity	1km
Weather Radars	REDZs 1 SEA dataset	Weather Radars	Very high sensitivity	0-18 km	N/A	N/A
			High sensitivity	18-30 km		

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)
			Medium sensitivity	30-60		
			Low sensitivity	more than 60 km		
<b>Karoo Central Astronomy Advantage Area (KCAAA)</b>	CSIR	Karoo Central Astronomy Advantage Area	Medium sensitivity	feature	Medium sensitivity	feature
<b>Square Kilometre Array (SKA) SEA study area</b>	SKA SEA	Square Kilometre Array (SKA) study area	Very high sensitivity	feature	Very high sensitivity	feature
			High sensitivity	0-20 km	High sensitivity	0-20 km
<b>Field crop boundaries</b>	December 2015 release of the Field crop boundary data set or any newer released version thereafter	Irrigated Areas	Very high sensitivity	feature	Very high sensitivity	feature
		Shadenet	Very high sensitivity	feature	Very high sensitivity	feature
		Viticulture	Very high sensitivity	feature	Very high sensitivity	feature
		Horticulture	Very high sensitivity	feature	Very high sensitivity	feature
		Remaining cultivated areas	High sensitivity	feature	High sensitivity	feature
<b>Paleontological heritage resources</b>	CSIR	Very high palaeontological sensitivities as demarcated on the SAHRIS paleomap	Very High sensitivity	feature	Very High sensitivity	feature
		High palaeontological sensitivities as demarcated on the SAHRIS paleomap	High sensitivity	feature	High sensitivity	feature
		Low and very low palaeontological sensitivities as demarcated on the SAHRIS paleomap	Low sensitivity	feature	Low sensitivity	feature
<b>Visual</b>	DEM or NGI	Mountain Ranges	Very high sensitivity	feature	very high sensitivity	feature
	DEM or NGI	Slopes > 25% or 1:4	Very high sensitivity	feature	very high sensitivity	feature

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)	
	NFEPA 2011	Major River	High sensitivity	32-500 m	High sensitivity	32-500 m	
	SANBI dataset	Coastal zones	High sensitivity	1-2 km	Medium sensitivity	1-4 km	
			Medium sensitivity	2-4 km			
	South African Conservation Areas Database (SACAD) -Q1,2017 and Provincial Conservation Areas	Private reserves and game farms	High sensitivity	0-5 km	Very high sensitivity	0-2.5 km	
			Medium sensitivity	5-10 km	High sensitivity	2.5-5 km	
			Low sensitivity	10-20 km	Medium sensitivity	5-10 km	
	SAPAD - Q2, 2017	Protected Areas	Very High	2.5km	Very High	2.5km	
		SALT	Very high sensitivity	0-25 km	Very high sensitivity	0-25 km	
			Medium sensitivity	25-75 km	Medium sensitivity	25-75 km	
	SAHRA	Heritage feature: Grade I sites	Very high sensitivity	0-1 km	Very high sensitivity	0-1 km	
			Medium sensitivity	1-1.5 km	Medium sensitivity	1-1.5 km	
		Heritage feature: Grade II sites	Very high sensitivity	0-1 km	Very high sensitivity	0-1 km	
			Medium sensitivity	1-1.5 km	Medium sensitivity	1-1.5 km	
		Heritage feature: Grade IIIa sites	Very high sensitivity	0 -150 m	Very high sensitivity	0 -150 m	
			Medium sensitivity	150 m - 1.5 km	Medium sensitivity	150 m - 1.5 km	
		Heritage feature: Grade IIIb sites	Very high sensitivity	0-50m	Very high sensitivity	0-50m	
			Medium sensitivity	50 m - 1.5 km	Medium sensitivity	50 m - 1.5 km	
		Heritage feature: Grade IIIc sites	Very high sensitivity	0-30m	Very high sensitivity	0-30m	
			Medium sensitivity	30 m - 1.5 km	Medium sensitivity	30 m - 1.5 km	
		AfrGIS Towns – 2015	Town, villages and settlements outside large urban areas	Very high sensitivity	0-2 km	Very high sensitivity	0-500 m
				High sensitivity	2-4 km	High sensitivity	500 m - 1 km
	Medium sensitivity			4-6 km	Medium sensitivity	1 km-2 km	
	DRDLR, NGI	National roads and scenic routes	Very high sensitivity	0-1 km	Very high sensitivity	0-500m	

Criteria	Source	Features	Mapping Sensitivity	Sensitivity (Wind)	Mapping Sensitivity	Sensitivity (Solar)
			High sensitivity	1-3 km	High sensitivity	500m-1km
			Medium sensitivity	3-5 km	Medium sensitivity	1 km-2 km
	Department of Transport, Western Cape	Western Cape Routes	Very high sensitivity	1km	Very high sensitivity	1km

The wall to wall environmental sensitivities map and boundaries of the second draft focus areas will be provided to the successful tenderer in spatial format (shapefiles) for the specialist assessment. JPEG and PDF maps can also be provided on request. The service provider must be able to use and manipulate spatial information on a GIS platform (ArcGIS or QGIS) in order to provide spatial inputs as part of the specialist assessment deliverables.

### 3. STUDY AREAS

The draft focus areas to be assessed can be seen in Figure 2 below.

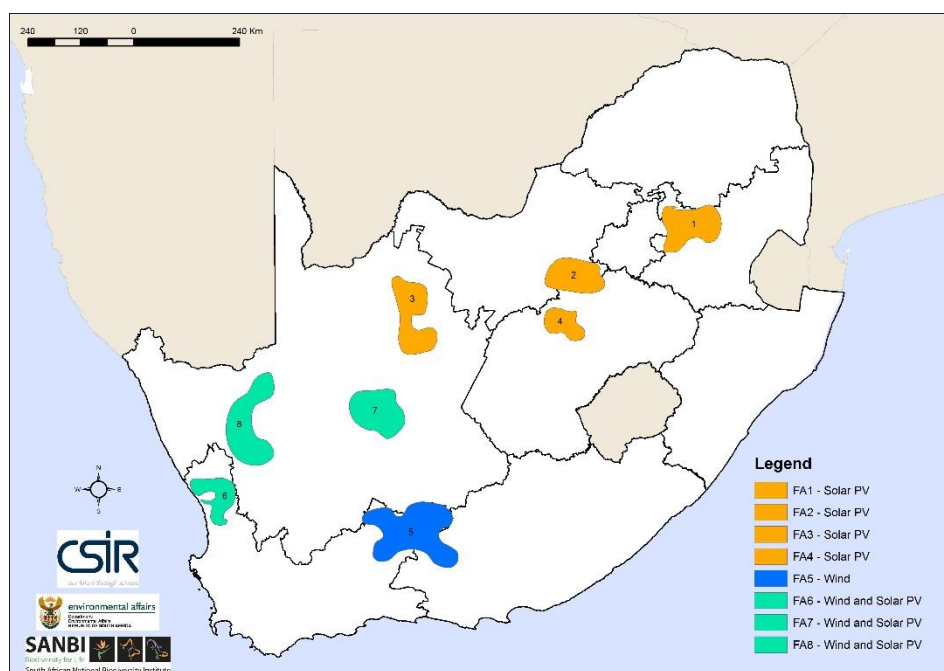


Figure 2: Draft focus areas for wind and solar PV energy development

### 4. BACKGROUND TO THE SPECIALIST ASSESSMENTS

In order to advance the principles of balance and comprehensiveness, Multi-Author Teams are the way in which the most topics in the assessment will be assessed, rather than the more usual single consultant approach applied to EIAs. The Multi-Author approach will entail that each team includes one Integrating Author and several Contributing Authors selected on the basis of their acknowledged expertise. The following workshops are planned with authors:

- **Multi-Author Workshop 1:** A one day kick-off briefing session all specialists (including the Integrating Authors and Contributing Authors) will be scheduled at the commencement of the Assessment Phase (to be held at the CSIR in Stellenbosch).
- **Multi-Author Workshop 2:** A workshop of one day including Integrating Authors and Contributing Authors will be convened at the CSIR in Stellenbosch to discuss **draft** assessment findings (i.e. first Draft Chapter (V1)) based on the draft inputs.

Based on existing literature and stakeholder inputs, the Strategic Issues listed below have been identified (note that the issue title and exact content will emerge from the first writing meeting/ kick-off briefing session):

- Ecology and Conservation (Terrestrial and Aquatic Ecosystem);
- Avifauna;

- Bats;
- Visual Aesthetics;
- Land Use;
- Heritage; and
- Socio-economics.

The Strategic Issues (i.e. Chapters/Reports) written by the Specialists, as well as the Integrating and Contributing Authors will go out for public review.

## 5. SCOPE OF WORK

As noted above, the specialists are expected to attend the two multi-author team workshops scheduled for 12 September 2018 (can be via skype depending on location) and mid-January 2019 respectively at the CSIR offices in Stellenbosch, and actively participate in the discussions and decisions on the draft assessment report. Assessments must be undertaken according to the requirements described in Section 5.1 below. They must deliver their report (electronic format), including text, references, tables and graphics (graphics can be in rough form and CSIR can assist with improvements) to CSIR Project Team by the agreed dates, and according to agreed formats and templates (including spatial (GIS) data). The report template will be provided by the CSIR Project Team.

The Integrative Author must coordinate the addressing of the external reviewer comments and writing the second draft. The Integrative Author must also assist in addressing the stakeholder and expert comments on the second draft. The CSIR SEA team will address reviewer and stakeholder comments received that are not related to the area of specialist expertise for that chapter, such as comments on the overall SEA process.

It must be re-iterated that the deliverables due by the specialist and final timeframes will be discussed between the CSIR and the specialist, and captured in a sub-contract. For this quote, the specialist must be able to fulfil the requirements, deliverables and work schedule provided by the CSIR Project Team.

Detailed, high-resolution maps (spatial analysis outcomes - where appropriate) will be an appended output.

The CSIR Project Team will be responsible for collecting and managing all stakeholder comments in an electronic database and distributing these to the Multi-Author Teams.

The IA leading his/her Strategic Issue will be responsible for:

- Chairing the multi-author team meeting discussions;
- Allocating writing tasks to the group;
- Ensuring tasks are done on time and to specification;
- Allocating reviewer response tasks;
- Ensuring that the responses to comments from stakeholders have been adequately addressed and/or incorporated and documented.

The outputs of the assessment will consist of:

- a Specialist Assessment Report in the form of a strategic issue chapter which will be integrated in the overall Phase 2 wind and solar PV SEA report;
- spatial data (shapefiles) and additional information/documents sourced by the specialist and used during the specialist study; and

- a comments and responses trail, prepared by the service provider after receiving the stakeholders' comments on the review of the third draft focus areas and strategic issues chapters.

## 5.1. LEVEL OF ASSESSMENT

The assessment will be focused primarily on the interpretation of existing data, specialist knowledge and based on defensible and, if available, standardised and recognised methodologies. The focus will primarily be to **review** the existing environmental wall to wall mapping outputs produced by the CSIR and SANBI with respect to features linked to avifauna and to identify and discuss direct, indirect and cumulative impacts. The appointed supplier will be required to identify any gaps in information linked to avifauna and avifaunal sensitive areas. Once the appointed supplier has considered the draft environmental constraints map, the map should be adapted/ enhanced with reference to the findings of the specialist assessment. The study methodology developed as part of this project will inform future SEA-level avifaunal specialist assessment methodologies.

The review of the environmental wall to wall mapping as well as the discussion on impacts should be undertaken in close collaboration with the relevant organisation related to the study field, i.e. Birdlife SA to ensure that the outcomes of the study are accepted by this agency and will be taken into consideration for future authorisation and commenting in assessed areas. It is recommended that the supplier meet with appropriate representatives from this agency as part of conducting this assessment.

The assessment should include the following:

- Review of existing literature (including the latest research undertaken both locally and internationally); maps and aerial photographs; and habitat data (if available) to compile a baseline description applicable to each focus area; including a list of bird species that are sensitive to renewable energy developments that have been observed and/or are likely to occur in each focus area; a shortlist of priority bird species that should be the focus of further assessment (if applicable) and a description of any likely movement corridors or flyways used by collision-prone priority species;
- Identification of any additional features of interest (such as roosts, etc.) or any gaps in information within the focus areas, making use of datasets made available through the draft environmental constraints map and additional information sourced by the specialist;
- Review available data and overlay with proposed focus areas to identify focus areas with very high sensitivities as well as identify areas where additional field work may be required.
- Liaison with relevant departments and NGOs on key susceptible species including Cape Vultures and their recommended buffers for wind energy
- Review and update, where required, the environmental sensitivity/attribute map provided by the CSIR and SANBI and develop/verify the approach for classing each sensitivity feature according to a four-tiered sensitivity rating system i.e. Very High, High, Medium or Low<sup>3</sup>;
- Identification and discussion on the key potential impacts (positive and negative) associated with the development of wind and solar PV projects and associated activities (e.g. construction of power lines and substations, construction of roads, etc) relating to the strategic issue;
- Description of the potential cumulative impacts (methodology to be discussed at workshop) associated with the development of wind and solar PV projects and associated activities (e.g. construction of power lines and substations, construction of roads, etc) relating to the strategic issue in the second draft focus areas, taking into account existing renewable energy projects across South Africa and the existing REDZs;
- Based on the findings of the assessment, provide the relevant information and produce an updated four-tiered sensitivity map related to the field of expertise; and

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<sup>3</sup> Sensitivities should be graded in relation to the ability to apply mitigation measures

- Review and provide input to the environmental assessment protocol (e.g. additional information and level of assessment is required in each sensitivity category (and where appropriate for habitats within each sensitivity class) before an authorisation with respect to avifauna should be considered), checklist, norms or standards

The assessment should be based on a review of existing literature and bird datasets (for example the Southern African Bird Atlas data, The Eskom Red Data Book of Birds of South Africa, Coordinated Waterbird Counts, Coordinated Avifaunal Roadcounts, the Birds in Reserves project and Important Bird Areas, and the power line - bird mortality incident database of the Eskom/Endangered Wildlife Trust Strategic Partnership. Avifaunal data collected from previous assessments (where available) and baseline monitoring (where publically available) in the surrounding areas should also be considered, as well as distance from formally protected areas, areas of biodiversity stewardship and Important Bird and Biodiversity Areas (IBAs).

### 5.1.1. Key Deliverables

The key deliverables and reporting requirements include:

- Specialist Assessment Report: A detailed specialist template report will be provided to the specialist for review and comment, and it will be finalised subsequent to the kick off briefing session. It is **expected** that each Strategic Issue topic report will generally cover the following:
  - A summary of key findings and recommendations, including degree-of-certainty and gaps in knowledge/data;
  - An introduction in the form of a brief discussion of the essential background on the Strategic Issue;
  - A description of the study methodology for the specific strategic issue, information on all experts who have contributed to the strategic issue chapter, the various inputs topics from all experts and source of data/information;
  - Assumptions, limitations, confidence estimates and the definition of issue scope and key terms;
  - A baseline description of each the draft focus area relating to the issue topic
  - A review of the wall to wall environmental sensitivities map produced by SANBI, including:
  - Review and confirm the features as well as associated buffers considered for the four tiers sensitivities mapping; and
  - Review and confirm the level of sensitivity allocated to each features as well as associated buffers (four- tiered sensitivity rating system i.e. Very High, High, Medium or Low).
  - Updated four-tiers sensitivity map
  - A description with spatial location (GPS coordinates and shapefiles) of any additional features of interest in terms of and the strategic issue within the second draft focus areas which were not identified in the wall to wall environmental sensitivities map produced by SANBI;
  - A discussion on the key potential impacts (positive and negative) associated with the development of wind and solar PV projects and associated activities (e.g. construction of power lines and substations, construction of roads, etc) relating to the strategic issue;
  - A description of the potential cumulative impacts associated with the development of wind and solar PV projects and associated activities (e.g. construction of power lines and substations, construction of roads, etc) relating to the strategic issue in the second draft focus areas, taking into account existing renewable energy projects across South Africa and the existing REDZs;
  - Proposed mitigation measures and management actions to enhance benefits and avoid/reduce/offset negative impacts (i.e. project-scale and cumulative impacts) associated with the development of wind and solar PV projects and associated activities (e.g. construction of power lines and substations, construction of roads, etc) relating to the strategic issue;
  - A review of the monitoring and site-specific assessment requirements of the existing protocols in relation to the Strategic Issue (produced by CSIR for the REDZs);



- The expert's recommendation on further field work and research required to reduce the gaps in knowledge and data for the draft focus areas;
- A conclusion (summary of findings) and discussion on the refinement of the second draft focus areas (boundaries and considerations); and
- References
- GIS Assessment Dataset and additional information sourced by the specialist;
- Metadata for the Assessment Dataset (DEA metadata template, must be used - template will be provided upon appointment);
- GIS based four-tiered consolidated sensitivity map of all sensitivity features identified through the assessment showing the location and spatial extent for each sensitivity feature and associated buffering. The sensitivity rating should be illustrated according to the following coloration scheme: Dark Red/Very High, Red/High, Orange/Medium, Green/Low<sup>4</sup>; and

### 5.1.2. Data and report submissions and formats

- An assessment report template that will be provided at a later stage will be used to standardise report formatting and guide the report layout;
- Reports must be submitted in English and in MS Word format;
- All maps included in the report must also be submitted as separate JPEGs;
- The reviewed and edited wall to wall environmental sensitivities map must be submitted to CSIR in spatial format (shapefiles) including all previously identified and additional sensitivity features and associated buffering. The spatial data produced by the service provided will be integrated to the web-based DEA screening tool and must be conditioned using the same format and naming convention of the data currently available on the web-based DEA screening tool. The specifications and format to be used will be discussed at the multi-author team inception workshop and provided to the service provider upon appointment. SANBI and CSIR may assist the service provider with the preparation of the data in terms of DEA's requirements.
- All produced spatial data must be submitted in shapefile format as follows (projection will also be provided electronically):
  - Projection Name: Albers
  - Central Meridian: 24
  - Upper Parallel: -24
  - Lower Parallel: -33
  - Datum Name: WGS 1984
  - Prime meridian: Greenwich
- All underlying spatial data used during the assessment must also be submitted in shapefile or raster format, with appropriate and cleaned up attribute data.

## 5.2. STAKEHOLDER COMMENTS

The broad stakeholder community, which is anticipated to include many organisations in civil society, business and government, and does not exclude organisations outside of the focus region or South Africa, will comment on the final assessment report via a structured web-based process. Their comments must be individually addressed by the authors in a documented, public domain database. They can be accepted (wholly or partly) and incorporated into the final SEA, or if not accepted, justification must be given. In principle, any person can participate as a stakeholder. The weight which will be

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<sup>4</sup> Where available, standardised and recognised sensitivity mapping methodologies should be used to determine sensitivities for each feature for each of the corridors.

attached to their comments will depend on the evidence which they supply and the degree to which they represent a significant community of stakeholders.

## **6. RESOURCES IN SUPPORT OF THE MULTI-AUTHOR TEAMS**

The CSIR Project Team is responsible for:

- 1) management and style editing of documents leading to the first, second, and final drafts;
- 2) appointment of the specialists,
- 3) any financial or contractual issues.

The CSIR Project Team is able to provide GIS-based spatial analysis support to the authors, for the Strategic Issues where this is required. At the outset of the SEA and throughout its process, the CSIR Project Team will maintain an on-line library of relevant baseline information and research material that can be accessed by the multi-author team.

## APPENDIX A: DRAFT ASSESSMENT TIMELINE WITH KEY DATES AND ACTIONS

DATE	ACTION
11 September 2018 (Provisional date to be confirmed)	Multi-Author Inception #1 (Briefing Session, with all specialists) from approx 10:00am to 14:00pm at CSIR Stellenbosch
12 September 2018– 12 November 2018	Identification of key areas that require field work and areas with very high sensitivity based on existing data
12 September 2018– 17 January 2019	Compile 1 <sup>st</sup> Integrated Draft Chapter (V1). V1 must include having a look at the focus areas, overlapping these with all available bird sensitivity data for wind and solar PV and highlighting areas which need to be avoided/removed from the current proposed focus areas
<b>18 January 2019</b>	<b>Specialist to complete the 1<sup>st</sup> Integrated Draft Chapter (V1 in preparation of Multi-Author Workshop).</b>
22 January 2019	Multi-Author Workshop #2 (with all specialists) from approx 9.30am to 4.30pm at CSIR Stellenbosch
22 January 2019 to 6 February 2019	Specialist to update their deliverables based on Multi-Author Workshop #2 discussions and submit their revised assessments to the CSIR
<b>8 February 2019</b>	<b>Submit 1<sup>st</sup> Integrated Draft Chapter (V2) to CSIR</b>
11 February 2019 to 13 February 2019	CSIR internal review of 1 <sup>st</sup> Draft Chapter (V2)
<b>14 February 2019 – 8 March 2019</b>	<b>Public Review</b>
11 March 2019– 15 March 2019	Author response to Review (including response table) and compilation of Final Draft Chapter
<b>18 March 2019</b>	<b>Submit Final Integrated Draft Chapter to CSIR</b>
19 March 2019 – 22 March 2019	CSIR Review, copy editing and formatting
29 March 2019	Final Assessment Report

Note: Review also includes review by the Project Partners (i.e. DEA. Review comments relevant to the SEA Process will be responded to by the CSIR Project Team, and the authors will only respond to comments relevant to their chapter content.