

BIODIVERSITY ACTION PLAN (BAP)

**SUEZ Wind Energy BOO Wind Power Plant
1.1 GW – Plot 1 & 2**

DRAFT

REV-1



Client:



Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

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1. INTRODUCTION

1.1 The Project Site and Study Area

This document is the draft Biodiversity Action Plan (BAP) for the ACWA 1.1GW Wind Farm covering both Plot 1 and Plot 2 (hereafter referred to as the “**Project**”). The Project is located in the Ras Gharib Local Governmental Unit of the Red Sea Governorate of Egypt. Plot 1 is approximately 174 km to the southeast of the capital city of Cairo. The nearest town is Ras Gharib which is located 18 km to the southeast of the Project area. Plot 2 is approximately 305 km to the southeast of the capital city of Cairo. The nearest town is Ras Shukeir which is located 8.5 km to the southeast.

The Project is located within a Strategic Area that has been allocated by the New and Renewable Energy Authority (NREA) for wind farm development projects. The Strategic Area has a total planned capacity of 1,500MW and covers 300 km² with the Suez wind Energy (SWE). Plot 1 is proposed to occupy approximately 135 km² of this and Plot 2 approximately 52 km².

The Project is proposed to have 138 wind turbines with 69 wind turbines in each Plot along with associated access and substation. Plot 1 has an internal 220kV overhead transmission line (OHTL) of approximately 17.8 km long and an approximate 48.4 km 220kV OHTL connecting a substation to the public grid. Plot 2 has an approximate 48.8 km long 500kV OHTL connecting to a sub-station. The location of the Project and proposed development plans are shown in Figures 1-3.

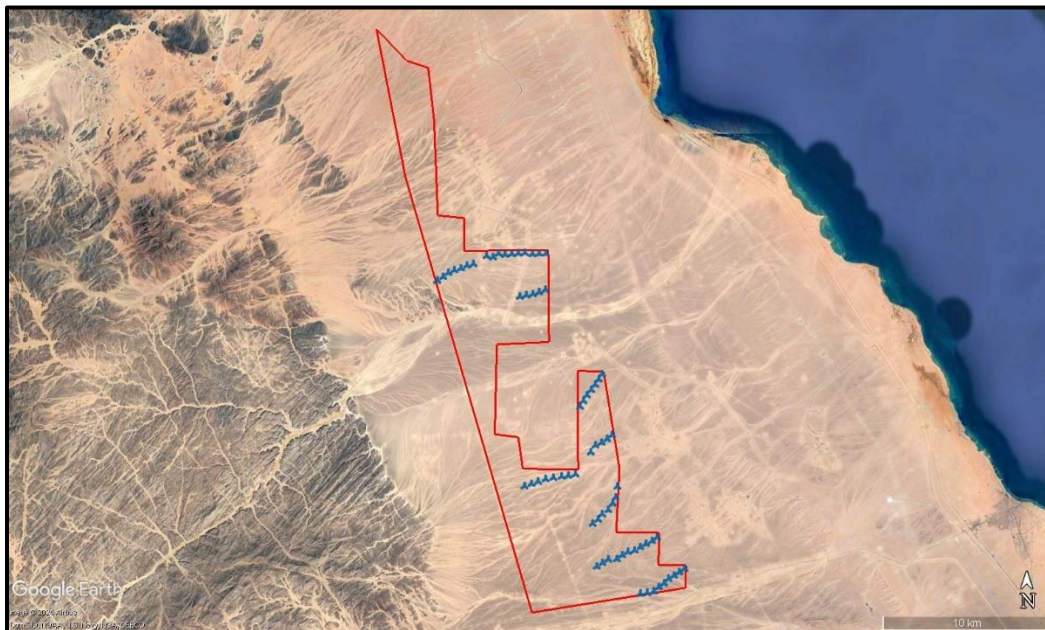


Figure 1: Plot 1 Project Site

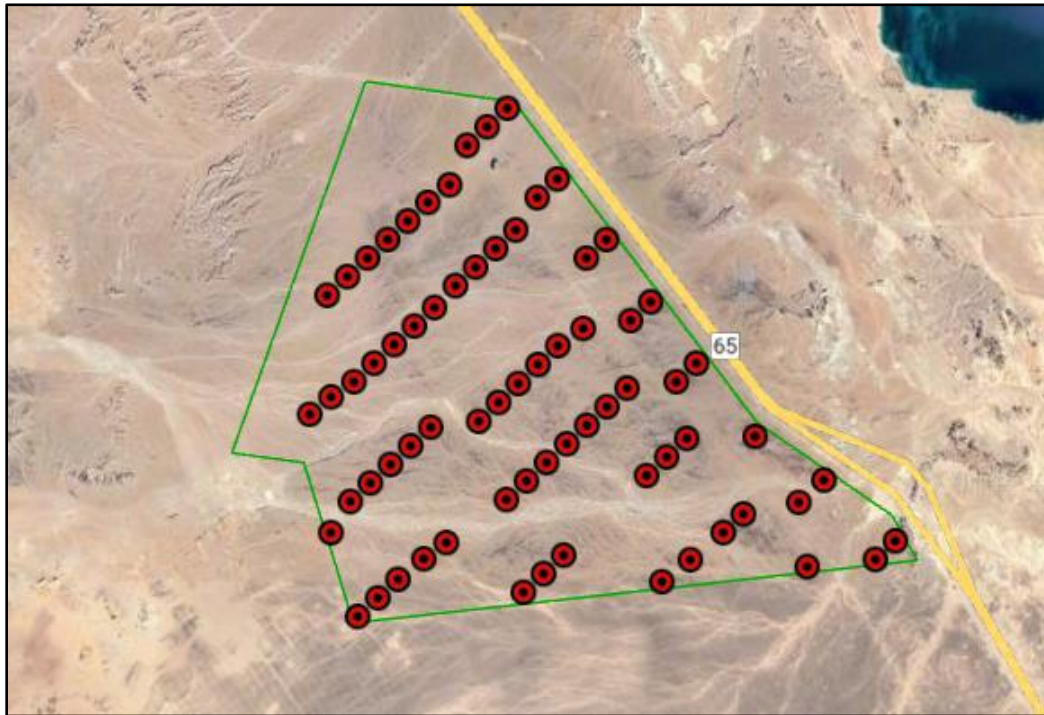


Figure 2: Plot 2 Project Site

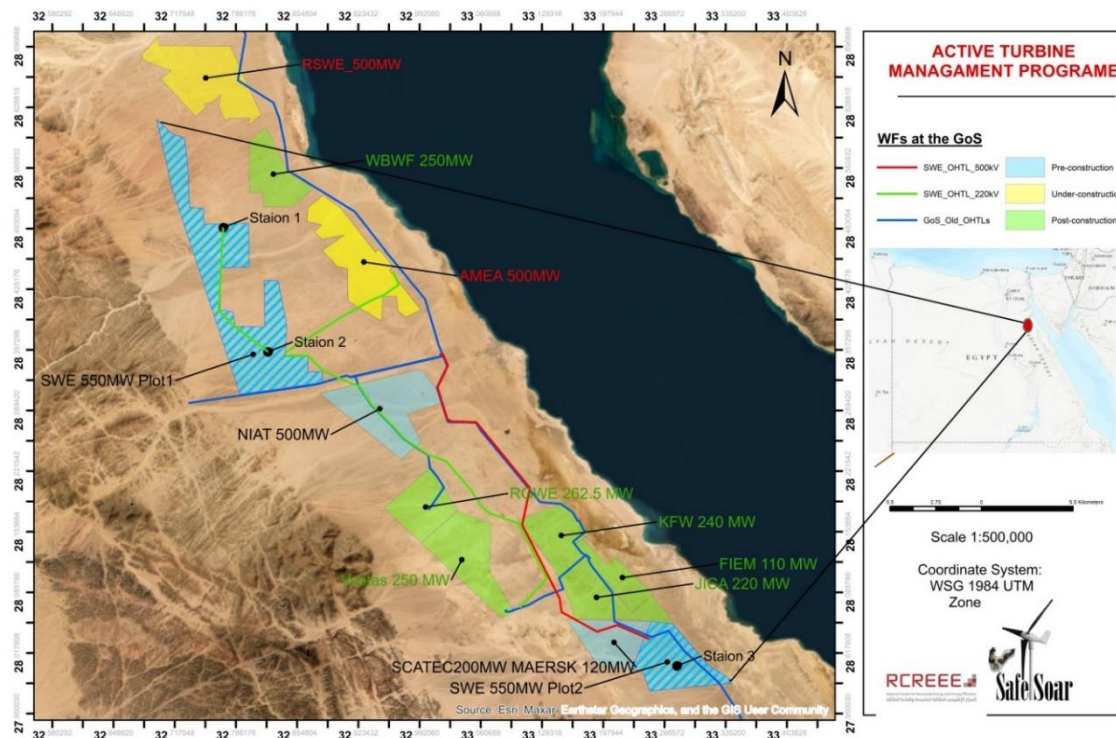


Figure 3: Plot 1 and 2 Project Sites and OHTL Routes in Relation to Other Project areas and OHTLs in the Area

1.2 Overall Project Objectives on Biodiversity

The Project is required to comply with the Lenders' Environmental and Social (E&S) standards as set out in European Bank for Reconstruction and Development (EBRD) E&S Performance Requirements 6 (PR6), as well as with the commitments set out in meeting national requirements.

The EBRD Performance Requirement 6 (PR6) indicates that protecting and conserving biodiversity, and its ability to change and evolve, is fundamental to sustainable development. The requirements set out in PR6 have been guided by the Convention on Biological Diversity, which defines biodiversity as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems.” The key objectives of PR 6 are:

- Protect and conserve biodiversity using a precautionary approach;
- Adopt the mitigation hierarchy in the design and implementation of projects with the aim of achieving no net loss, and where appropriate, a net gain of biodiversity;
- Maintain ecosystem services; and
- Promote good international practice in the sustainable management and use of living natural resources.

The overall objective of the Project with regards to commitments to biodiversity are to ensure:

- Ecological processes are maintained and are not disrupted.
- Impacts on fauna and flora species as a result of construction and O&M activities are minimized.
- “No net loss” for any Priority Biodiversity Features.
- Net Gains for Critical Habitat qualifying species; and
- Ensure no net negative residual impact on other ecological receptors.

Achieving these objectives requires that the mitigation hierarchy is exercised to ensure Project-related impacts are managed through taking appropriate avoidance, minimization and restoration measures before biodiversity offsets are considered to compensate for significant residual impacts.

1.3 Purpose and Scope of Document

This BAP details the Project's biodiversity management initiatives, commitments, and obligations. The aim of the BAP is to safeguard and promote the viability of priority species and habitats associated with the Project. This BAP details the procedure for the implementation of the Project's biodiversity mitigation and management measures during the pre-construction and construction phases that will be followed by the Company and EPC Contractor. Mitigation, monitoring and management measures for the operational phase of the Project will be detailed in a separate Operational BAP which will be prepared prior to the commissioning of the Project. Although it should be noted that a skeleton off-setting plan and suggested KPIs for measuring success of the BAP during the operational stages of the project are included within this document and will be expanded upon in the Operational BAP.

This BAP should be read in conjunction with a suite of assessment documents for the Project, that collectively outline the Project's predicted impacts and approach to biodiversity management, including:

- Environmental and Social Impact Assessment;
- Critical Habitat Assessment (CHA) (EcoConsult 2022a); and
- Cumulative Effects Analysis (CEA) (EcoConsult 2022b).

The BAP aims to:

- Set out an overview of the project including brief baseline conditions;
- Set out project requirements associated with Critical Habitat and Priority Biodiversity Features;
- Set out the key project mitigation associated with CH and PBF;
- Detail the residual impact following implementation of mitigation; and
- Outline the offset strategy including;
- Offset options and feasibility;
- Monitoring and Evaluation;
- BAP implementation; and
- Steps to update the documents.

This BAP is a dynamic document that will be adapted and updated as and when new information becomes available throughout the lifespan of the Project to ensure its relevancy. Implementation of this BAP will ensure the Project's alignment with best practice, legislative requirements and the Project's commitments to biodiversity.

In its current form, the document is designed to confirm that the predicted offsetting requirements can be met with updates on further detail on offset projects to be provided through the process.

2. BIODIVERSITY CONTEXT

2.1 Project Site and Study Area

Being located by the western coastline of the Gulf of Suez, the Project Site and the general study area are located along the Red Sea/Rift Valley flyway, which is one of the most important migration flyways for migratory soaring birds in the world with over 1.5 million soaring birds migrating through it twice a year (Birdlife, 2020). The flyway links the Eurasian breeding grounds with the African wintering areas for at least 37 migratory soaring bird species. Regular migration monitoring along the western coast of the Gulf of Suez where the project is located has shown that there is a significant difference in the level of use of the area during migration seasons. Research has shown that this part of the flyway is used by much larger numbers of birds during spring migration in comparison with autumn migration seasons.

The project is within the Gebel El Zeit Important Bird Area (IBA) which is a narrow, 100-km-long strip of land extending along the Gulf of Suez/Red Sea coast, from Ras Gharib in the north to the Bay of Ghubbet El Gamsa in the south. The IBA contains several pools of hyper-saline water and large patches of saltmarsh as well as two large shallow bays with extensive intertidal mud and sandflats (Birdlife, 2023). The IBA and surrounding area is known to be used by over 250,000 migratory soaring birds each year, with many of these birds crossing between the western shore of the Gulf of Suez and the Sinai Peninsula on their spring and autumn migrations. The IBA location in relation to the Project Site is shown in *Figures 4 and 5* and a map of the main Rift Valley/Red Sea flyway elements is shown in *Figure 6*.

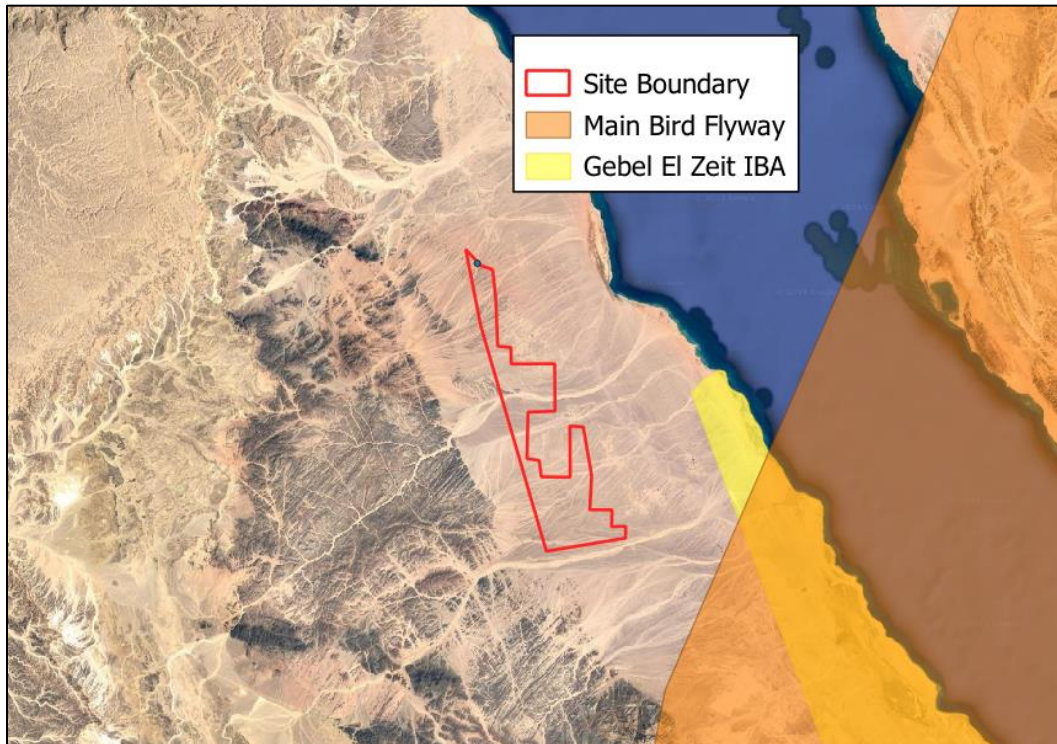


Figure 4: Project Site Plot 1 in relation to Gebel El Zeit IBA and Red Sea Flyway

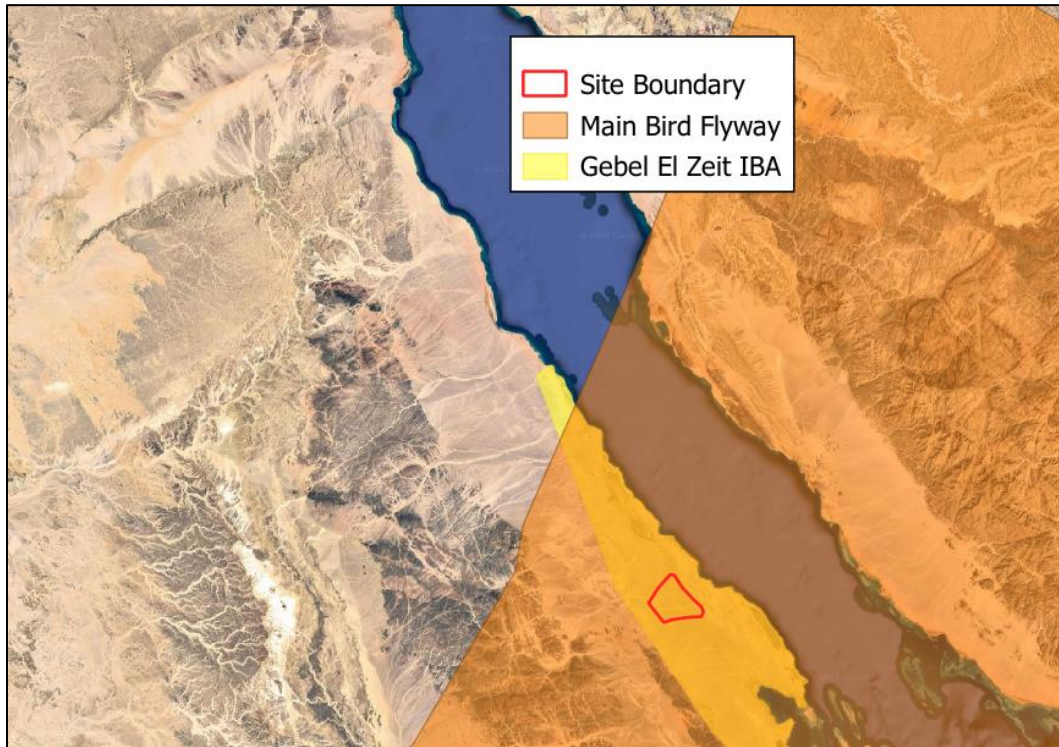


Figure 5: Project Site Plot 2 in relation to Gebel El Zeit IBA and Red Sea Flyway

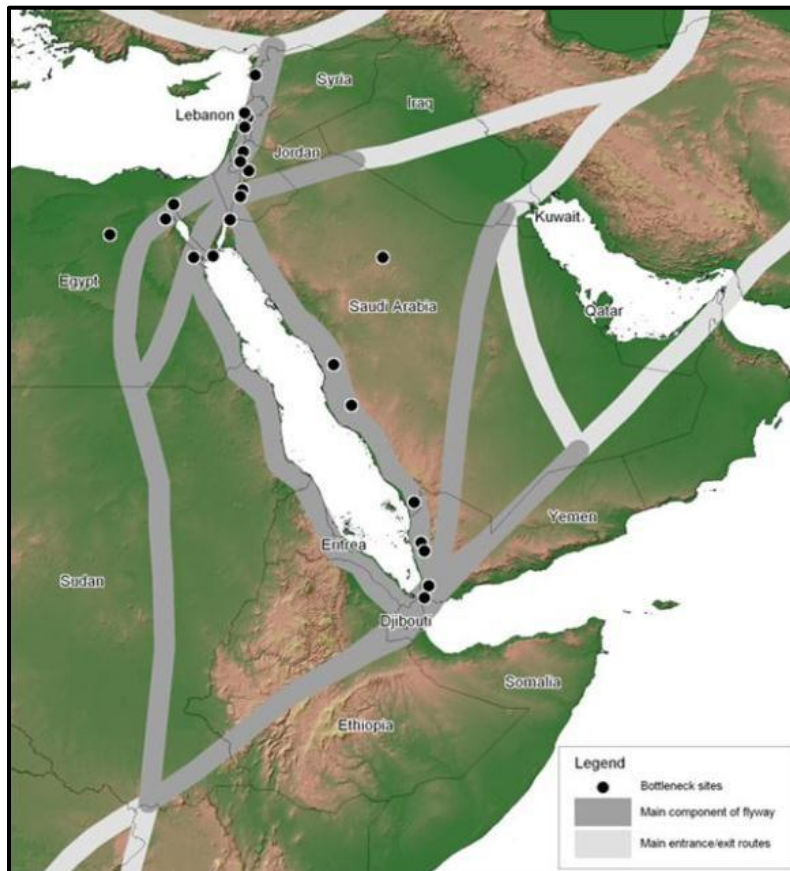


Figure 6: Map of the main elements of the Rift Valley/Red Sea flyway showing key bottleneck sites (Source: BirdLife International)

2.2 Literature review

The assessment was based on existing literature in addition to global and regional datasets. All species classified as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Data Deficient in the IUCN Red List were screened, as well as all species mapped by IUCN which could be considered restricted-range. Additionally, up-to-date ecological assessments, including avifaunal in-flight monitoring, flora survey and others, that are included in the ESIA of the Project Site were used in the analysis. Other sources of data included the following:

- Environmental and Social Impact Assessments of all surrounding Wind Power Projects;
- Critical Habitat Assessments from surrounding Wind Power Projects;
- Publicly available satellite telemetry data (Feltrup-Azafzaf *et al.* 2016; Dagys & Zydelis 2018; Nagy *et al.* 2018) and published literature (Buechley *et al.* 2018, Gauld *et al.* 2022)
- BirdLife International's Important Bird Area Data Zone website;
- BirdLife International Migratory Soaring Birds Tool V3 (birdlife.org); and
- Protected Planet's Word Database on Protected Areas (WDPA).

The assessment was conducted using the best recent and available information at the time of its production. In an area where regular avifaunal monitoring is being carried out, a better understanding of the level of use, species present, and seasonal fluctuations is becoming increasingly understood every season. It is believed that as more research is planned for the future, at the Project Site and in the adjacent projects, a better understanding of the area as a whole will be obtained. These results could affect the results of the assessment, however the location of the Project along a major migration flyway and adjacent to an IBA, which is a significant stopover or congregatory site, will not change the importance of the area for migratory soaring birds specifically nor will it change the need for detailed mitigation measures and monitoring plans to ensure the conservation of the species that use the flyway, the Gulf of Suez and the project site.

2.3 Stakeholder Consultation

Birdlife International and NCE have been consulted throughout the project process to understand their thoughts on the project. As a result of the engagement with Birdlife International additional consultation with NCE has taken place to ensure their considerations on work within an IBA are fully understood.

As part of the BAP process consultation with stakeholders to collaborate with current and proposed projects suitable for offsetting required as part of this BAP has included detailed discussions with NCE as well as initial discussions with the Royal Society for the Conservation of Nature (RSCN), Jordan and an initial consultation with Project Blade with a consideration to combining efforts in offsetting.

2.4 Baseline Ecological Information

2.4.1 General

Brief methods and assessment are provided with further information available in the full Project ESIA and OHTL ESIA.

2.4.2 Survey Effort

Wind Farm

The ecological baseline (habitat identification, floral survey, terrestrial fauna and avifauna survey) was established by undertaking site specific surveys within the Project area. These surveys were completed in Spring 2022, Autumn 2022, Spring 2023 and Autumn 2023 and included:

- Walkover transect survey for habitat assessment categorization and rare and endemic species of plants;
- Walkover transect surveys for mammals and reptiles. Trapping and camera trap surveys were also completed to determine the assemblage of small mammals with the Project site;
- Invertebrate surveys using a range of methods including active searching from transects and the deployment of pit-fall traps;
- Acoustic monitoring for bats completed in from May to November 2023;
- Ornithological Survey consisting of Vantage Point (VP) surveys with methodology of such survey based on modified Nature Scot (formerly SNH) Guidelines. As stated in the ESIA the following hours of observation were completed from eighteen VPs which offered comprehensive coverage of the airspace above the Project site. Cumulative survey hours were as follows:
 - Spring 2022 – Total Hours – 3345 hours, 3 minutes
 - Autumn 2022 – Total Hours – 4768 hours, 0 minutes
 - Spring 2023 – Total Hours – 4455 hours, 0 minutes
 - Autumn 2023 – Total Hours – 4796 hours, 5 minutes

Overhead Transmission Line (OHTL)

The ecological baseline (habitat identification, floral survey, terrestrial fauna and avifauna survey) was established by undertaking site specific surveys within the Project area. These surveys were completed in Spring and Summer 2024 and included:

- Walkover transect survey for habitat assessment categorization and rare and endemic species of plants;
- Walkover transect surveys for mammals and reptiles. This included line transects and active searching for mammals and square-shaped line transects for reptiles;
- Avifauna were recorded in the field incidentally. To understand the number of MSBs and potential collisions through the area, holistic approach has been undertaken, using data from other local wind farm studies to understand areas of high bird movement and risk as well as look at actual impacts at current OHTLs to determine predicted numbers of MSB collisions per year / over the lifetime of the Project.

The following sections present a brief synopsis of relevant baseline information pertinent to the determination of Critical Habitat, however the ESIA should be referred to for the full results of the baseline

surveys completed at the Project site.

2.4.3 Habitats and Flora

Wind Farm

According to Olson et al (2001), the Project area is located in the Desert and Xeric Shrublands Biome and more specifically in the Ecoregion of Red Sea Coastal Desert. Applying the classification elaborated by Harhash et al. (2015) to the habitats found in the Project area, the whole Project area, both Plot 1 and Plot 2, must be attributed to the main habitat system “Desert”. The vast majority of the Project area can be classified as “Hamada Desert” (Sub-System: “Plain Land”) that is crossed by wadis which belong to the Sub-System “Low Land”.

A total of thirty-two plant species were identified in Plot 1 with fifteen plant species identified in Plot 2. The most abundant plant species across both plots were *Acacia tortilis* and *Tamarix nilotica*.

Flora species recorded across the Project showed no significant species concerning endemism or species under a specific threat or those of global or national conservation concern. The recorded plant and habitat community is very much a typical Red Sea coast community with no specific interests. The habitats on site are however considered to be Natural.

OHTL

Thirty-one sampling sites were used. Except for the main drainage channels or wadis, the study area is sparsely vegetated. The floral community across the survey area comprised of about 19 species only with six species dominating and no species of conservation concern or endemic species recorded.

The main feature of interest within the area is the dam which is used by roosting birds during spring as well as feeding birds during spring seasons where water is present.

2.4.4 Mammals (excluding bats)

Wind Farm

Literature reviews and site surveys confirmed the following reptile species could be negatively impacted by the Project. Two species were highlighted across both projects:

- Arabian Red Fox (*Vulpes vulpes*); and,
- Lesser Egyptian Gerbil (*Gerbillus gerbillus*)

With a further two species highlighted at Plot 1 only:

- Sundevall’s Jird (*Meiones crassus*); and
- Lesser Egyptian Jerboa (*Jaculus jaculus*).

OHTL

Literature reviews and site surveys confirmed the following mammal species:

- Arabian Red Fox
- Lesser Egyptian Gerbil
- Cairo Spiny Mouse (*Acomys caherinus*)

All the rodent species are typical species of the ecosystem present within the Project site and are all IUCN Least Concern. Red Fox is also quite common in Red Sea coast ecosystem and is also listed by the IUCN as Least Concern.

2.5 Reptiles

Wind Farm

Literature reviews and site surveys confirmed the following reptile species could be negatively impacted by the Project:

- Egyptian Spiny-tailed Lizard (*Uromastix aegyptia*),
- Red-spotted Lizard (*Mesalina rubropunctata*),
- Bosc's Lizard (*Acanthodactylus boskianus*),
- Pallid Agama (*Trapelus pallidus*),
- Steudner's Pigmy Gecko (*Tropicolotes steudneri*) and,
- Elegant Gecko (*Stenodactylus sthenodactylus*)

The Egyptian Spiny-tailed Lizard is listed as being Vulnerable by the IUCN but none of the remaining five species are not of global or national conservation concern.

OHTL

Literature reviews and site surveys confirmed the following reptile species could be negatively impacted by the Project:

- Egyptian Spiny-tailed Lizard,
- Red-spotted Lizard,
- Bosc's Lizard,
- Pallid Agama,
- Horned Viper (*Cerastes cerastes*) and,
- Saharan Sand Snake (*Psammophis aegyptius*)

The Egyptian Spiny-tailed Lizard is listed as being Vulnerable by the IUCN but none of the remaining seven species are of global or national conservation concern.

2.6 Invertebrates

The invertebrate assemblage recorded within the Project area is typical for the habitats present and no species of national or international conservation concern were recorded.

2.7 Bats

Literature reviews have confirmed that bat activity is low in the area of the Project and only very low bat activity was recorded during the thorough survey effort. 17 bat passes were recorded across Plot 1 and 38 in Plot 2 with no species recorded of conservation concern at either Plot showing the presence of bats in very low numbers in and around the Project Area. It is therefore considered that the Project site is of not of significance for bat activity nor does it support landscape or habitat features that would be suitable for significant roosting.

2.8 Birds

Migration Surveys

As part of the Environmental and Social Impact Assessment (ESIA) for the project, in-flight monitoring assessments were undertaken at the Project Site during the spring and autumn seasons 2022 and 2023. Additionally, a comprehensive literature review was undertaken. Based on the Egyptian Environmental Affairs Agency (EEAA) requirements, avifaunal in-flight monitoring has been carried out in 2022 and 2023. Operational monitoring will be carried out, including shutdown on demand and fatality monitoring as part of the Active Turbine Management Plant (ATMP) that is already being implemented in the region as a whole.

2.8.1 Plot 1

In spring 2022, a total of 208,370 individuals of twenty-seven species were recorded. In spring 2023, a total of 266,570 individuals of twenty-seven migratory soaring bird species were recorded.

In autumn 2022, a total of 8,244 individuals of twenty species were recorded. In autumn 2023, a total of 17,619 individuals of twenty-two species were recorded.

The results of the 2022 and 2023 surveys are shown in the table below.

Table 1: Species Recorded during Vantage Point Monitoring in during 2022 and 2023

Species	Scientific Name	IUCN Status	National Status	Spring 22	Spring 23	Autumn 22	Autumn 23
Levant Sparrowhawk	<i>Accipiter brevipes</i>	Least Concern	Passage migrant	1128	999	117	14
Sparrowhawk	<i>Accipiter nisus</i>	Least Concern	Passage migrant	44	29	5	11

Species	Scientific Name	IUCN Status	National Status	Spring 22	Spring 23	Autumn 22	Autumn 23
Bonelli's Eagle	<i>Aquila fasciata</i>	Least Concern	Passage migrant / resident	1	0	0	0
Eastern Imperial Eagle	<i>Aquila heliaca</i>	Vulnerable	Passage migrant	24	41	0	1
Steppe Eagle	<i>Aquila nipalensis</i>	Endangered	Passage migrant	2055	18793	2	6
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Least Concern	Passage migrant	42904	83900	158	166
Long-legged Buzzard	<i>Buteo rufinus</i>	Least Concern	Passage migrant / winter visitor	240	123	4	5
White Stork	<i>Ciconia ciconia</i>	Least Concern	Passage migrant	135042	114690	1512	8964
Black Stork	<i>Ciconia Nigra</i>	Least Concern	Passage migrant	1183	1108	2	0
Short-toed Snake Eagle	<i>Circaetus gallicus</i>	Least Concern	Passage migrant / summer breeder	706	1738	1	1
Marsh Harrier	<i>Circus aeruginosus</i>	Least Concern	Passage migrant	39	40	108	78
Pallid Harrier	<i>Circus macrourus</i>	Near Threatened	Passage migrant / winter visitor	21	16	21	27
Montagu's Harrier	<i>Circus pygargus</i>	Least Concern	Passage migrant	13	10	20	38
Greater Spotted Eagle	<i>Clanga clanga</i>	Vulnerable	Passage migrant	12	16	0	0
Lesser Spotted Eagle	<i>Clanga pomarina</i>	Least Concern	Passage migrant	860	649	0	4
Lanner Falcon	<i>Falco biarmicus</i>	Least Concern	Passage migrant	2	5	0	4
Sooty Falcon	<i>Falco concolor</i>	Vulnerable	Passage migrant / summer breeder	0	1	21	15
Hobby	<i>Falco subbuteo</i>	Least Concern	Passage migrant	0	1	0	1
Kestrel	<i>Falco tinnunculus</i>	Least Concern	Passage migrant	82	243	79	117
Common Crane	<i>Grus grus</i>	Least Concern	Passage migrant	888	626	0	88

Species	Scientific Name	IUCN Status	National Status	Spring 22	Spring 23	Autumn 22	Autumn 23
Griffon Vulture	<i>Gyps fulvus</i>	Least Concern	Passage migrant	1	3	0	0
Booted Eagle	<i>Hieraaetus pennatus</i>	Least Concern	Passage migrant	310	315	7	6
Black Kite	<i>Milvus migrans</i>	Least Concern	Passage migrant	9312	12088	190	256
Egyptian Vulture	<i>Neophron percnopterus</i>	Endangered	Passage migrant	84	260	0	0
Osprey	<i>Pandion haliaetus</i>	Least Concern	Passage migrant	15	22	2	3
Dalmatian Pelican	<i>Pelecanus crispus</i>	Near Threatened	Passage migrant / winter visitor	1	0	0	0
White Pelican	<i>Pelecanus onocrotalus</i>	Least Concern	Passage migrant	138	11091	535	1978
Honey Buzzard	<i>Pernis apivorus</i>	Least Concern	Passage migrant	7675	12761	5195	5764
Lesser Kestrel	<i>Falco naumanni</i>	Least Concern	Passage migrant	1	0	0	0
Peregrine	<i>Falco peregrinus</i>	Least Concern	Passage migrant / resident	0	0	1	2
Red-footed Falcon	<i>Falco vespertinus</i>	Vulnerable	Passage migrant	0	1	3	0

Information relating to the number of birds recorded using the airspace of the Project site and their respective global populations is presented in the table below.

Table 2: Recorded Populations as a Proportion of their Respective Global Populations

Species	IUCN Status	Global Population min	Global Population max	Peak Spring Passage	% of minimum global population	Peak Autumn Passage	% of minimum global population
Levant Sparrowhawk	Least Concern	10000	19999	1128	11.28	117	1.17
Sparrowhawk	Least Concern	2000000	3200000	44	0.002	11	0.0005
Bonelli's Eagle	Least Concern	20000	49999	1	0.005	0	0
Eastern Imperial Eagle	Vulnerable	2500	9999	41	1.64	1	0.04
Steppe Eagle	Endangered	50000	75000	18793	37.57	6	0.01
Steppe Buzzard	Least Concern	2000000	3500000	83900	4.20	166	0.01

Long-legged Buzzard	Least Concern	100000	499999	240	0.24	5	0.005
White Stork	Least Concern	700000	704000	135042	19.29	8964	1.28
Black Stork	Least Concern	24000	44000	1183	4.93	2	0.008
Short-toed Snake Eagle	Least Concern	50000	99999	1738	3.48	1	0.002
Marsh Harrier	Least Concern	600000	1100000	40	0.007	108	0.018
Pallid Harrier	Near Threatened	18000	30000	21	0.12	27	0.15
Montagu's Harrier	Least Concern	300000	550000	13	0.004	38	0.013
Greater Spotted Eagle	Vulnerable	3900	10000	16	0.41	0	0
Lesser Spotted Eagle	Least Concern	40000	60000	860	2.15	4	0.01
Lanner Falcon	Least Concern	67000	67000	5	0.008	4	0.006
Sooty Falcon	Vulnerable	2800	4000	1	0.036	21	0.75
Hobby	Least Concern	900000	1500000	1	0.0001	1	0.0001
Kestrel	Least Concern	4300000	6700000	243	0.006	117	0.003
Common Crane	Least Concern	491000	503000	888	0.18	88	0.02
Griffon Vulture	Least Concern	80000	900000	3	0.004	0	0
Booted Eagle	Least Concern	150000	195000	315	0.21	7	0.005
Black Kite	Least Concern	4000000	5700000	12088	0.30	256	0.006
Egyptian Vulture	Endangered	12400	36000	260	2.10	0	0
Osprey	Least Concern	100000	1200000	22	0.02	3	0.003
Dalmatian Pelican	Near Threatened	11400	13400	1	0.009	0	0
White Pelican	Least Concern	265000	295000	11091	4.19	1978	0.75
Honey Buzzard	Least Concern	290000	430000	12761	4.4	5764	1.99
Lesser Kestrel	Least Concern	80000	134000	1	0.001	0	0
Peregrine	Least Concern	100000	499999	0	0	2	0.002

Red-footed Falcon	Vulnerable	287500	400000	1	0.0004	3	0.001
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* Global populations taken from IUCN Red List and lower estimates of population sized have been used in this assessment

¹ – conservation status and global population of Common Buzzard (*Buteo buteo*) used

Landing and Resting

Migratory soaring birds typically rest overnight along migration routes except for species such as Lesser Kestrel and Common Crane. Overnight resting may pose a risk of being predated and as such the terrestrial habitats such as deserts are not typically secure places for long-term resting. Resting behaviour is considered different to roosting which is where birds return to the same secure locations for longer-term stopover including for feeding, washing, preening or longer periods of rest/sleeping. Overnight or shorter-term resting may occur due to sudden changes in weather (e.g. rain or sandstorm, abrupt change in wind direction) that may disrupt birds during migration. Birds will then leave these resting areas as soon as conditions allow.

2.8.2 Plot 2

In spring 2022, a total of 241,003 individuals of twenty-five species were recorded. In spring 2023, a total of 304,607 individuals of twenty-six species were recorded.

In autumn 2022, a total of 231,381 individuals of twenty migratory soaring bird species were recorded. In autumn 2023, a total of 234,193 individuals of twenty-three species were recorded.

The results of the 2022 and 2023 surveys are shown in the table below.

Table 3: Species Recorded during Vantage Point Monitoring in 2022 and 2023

Species	Scientific Name	IUCN Status	National Status	Spring 22	Spring 23	Autumn 22	Autumn 23
Levant Sparrowhawk	<i>Accipiter brevipes</i>	Least Concern	Passage migrant	16085	8565	40	1
Sparrowhawk	<i>Accipiter nisus</i>	Least Concern	Passage migrant	19	24	9	1
Eastern Imperial Eagle	<i>Aquila heliaca</i>	Vulnerable	Passage migrant	30	14	0	0
Steppe Eagle	<i>Aquila nipalensis</i>	Endangered	Passage migrant	1267	6859	28	27
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Least Concern	Passage migrant	15276	22645	59	32
Long-legged Buzzard	<i>Buteo rufinus</i>	Least Concern	Passage migrant / winter visitor	179	53	3	1
White Stork	<i>Ciconia ciconia</i>	Least Concern	Passage migrant	172359	221558	203147	211059

Species	Scientific Name	IUCN Status	National Status	Spring 22	Spring 23	Autumn 22	Autumn 23
Black Stork	<i>Ciconia Nigra</i>	Least Concern	Passage migrant	782	1108	430	73
Short-toed Eagle	<i>Circaetus gallicus</i>	Least Concern	Passage migrant / summer breeder	123	143	4	1
Marsh Harrier	<i>Circus aeruginosus</i>	Least Concern	Passage migrant	69	45	85	59
Pallid Harrier	<i>Circus macrourus</i>	Near Threatened	Passage migrant / winter visitor	16	1	11	11
Montagu's Harrier	<i>Circus pygargus</i>	Least Concern	Passage migrant	10	6	32	16
Greater Spotted Eagle	<i>Clanga clanga</i>	Vulnerable	Passage migrant	21	6	0	0
Lesser Spotted Eagle	<i>Clanga pomarina</i>	Least Concern	Passage migrant	67	200	1	2
Lanner Falcon	<i>Falco biarmicus</i>	Least Concern	Passage migrant	2	1	1	1
Sooty Falcon	<i>Falco concolor</i>	Vulnerable	Passage migrant / summer breeder	2	1	0	4
Hobby	<i>Falco subbuteo</i>	Least Concern	Passage migrant	1	1	0	1
Kestrel	<i>Falco tinnunculus</i>	Least Concern	Passage migrant	91	97	35	17
Common Crane	<i>Gyps fulvus</i>	Least Concern	Passage migrant	2	6747	0	0
Griffon Vulture	<i>Gyps fulvus</i>	Least Concern	Passage migrant	0	2	0	0
Booted Eagle	<i>Hieraetus pennatus</i>	Least Concern	Passage migrant	55	69	17	17
Black Kite	<i>Milvus migrans</i>	Least Concern	Passage migrant	5444	6064	322	149
Egyptian Vulture	<i>Neophron percnopterus</i>	Endangered	Passage migrant	51	51	8	5
Osprey	<i>Pandion haliaetus</i>	Least Concern	Passage migrant	14	5	6	2
White Pelican	<i>Pelecanus onocrotalus</i>	Least Concern	Passage migrant	21114	8590	20141	14375
Honey Buzzard	<i>Pernis apivorus</i>	Least Concern	Passage migrant	6213	21157	6618	8314
Raptor Sp.	<i>Raptor spp.</i>	-	-	44	189	144	2
Lesser Kestrel	<i>Falco vespertinus</i>	Least Concern	Passage migrant	0	0	0	2

Information relating to the number of birds recorded using the airspace of the Project site and their respective global populations is presented in the table below.

Table 4: Recorded Populations as a Proportion of their Respective Global Populations

Species	IUCN Status	Global Population min	Global Population max	Peak Spring Passage	% of minimum global population	Peak Autumn Passage	% of minimum global population
Levant Sparrowhawk	Least Concern	10000	19999	16085	160.85	40	0.4
Sparrowhawk	Least Concern	2000000	3200000	24	0.001	9	0.0005
Eastern Imperial Eagle	Vulnerable	2500	9999	30	1.2	0	0
Steppe Eagle	Endangered	50000	75000	6859	13.72	28	0.06
Steppe Buzzard	Least Concern	2000000	3500000	22645	1.13	59	0.003
Long-legged Buzzard	Least Concern	100000	499999	179	0.18	3	0.003
White Stork	Least Concern	700000	704000	221558	31.65	211059	30.15
Black Stork	Least Concern	24000	44000	1108	4.62	430	1.79
Short-toed Eagle	Least Concern	50000	99999	143	0.29	4	0.01
Marsh Harrier	Least Concern	600000	1100000	69	0.012	85	0.014
Pallid Harrier	Near Threatened	18000	30000	16	0.09	11	0.06
Montagu's Harrier	Least Concern	300000	550000	10	0.003	32	0.01
Greater Spotted Eagle	Vulnerable	3900	10000	21	0.54	0	0
Lesser Spotted Eagle	Least Concern	40000	60000	200	0.5	2	0.005
Lanner Falcon	Least Concern	67000	67000	2	0.003	1	0.0015
Sooty Falcon	Vulnerable	2800	4000	2	0.071	4	0.14
Hobby	Least Concern	900000	1500000	1	0.0001	1	0.0001
Kestrel	Least Concern	4300000	6700000	97	0.002	35	0.001
Common Crane	Least Concern	491000	503000	6747	1.37	0	0
Griffon Vulture	Least Concern	80000	900000	2	0.003	0	0

Species	IUCN Status	Global Population min	Global Population max	Peak Spring Passage	% of minimum global population	Peak Autumn Passage	% of minimum global population
Booted Eagle	Least Concern	150000	195000	69	0.05	17	0.01
Black Kite	Least Concern	4000000	5700000	6064	0.15	322	0.009
Egyptian Vulture	Endangered	12400	36000	51	0.41	8	0.065
Osprey	Least Concern	100000	1200000	14	0.01	6	0.01
White Pelican	Least Concern	265000	295000	21114	7.97	20141	7.6
Honey Buzzard	Least Concern	290000	430000	21157	7.30	8314	2.9
Lesser Kestrel	Least Concern	80000	134000	0	0	2	0.0025

* Global populations taken from IUCN Red List and lower estimates of population sized have been used in this assessment

¹ – conservation status and global population of Common Buzzard (*Buteo buteo*) used

Landing and Resting

Migratory soaring birds typically rest overnight along migration routes except for species such as Lesser Kestrel and Common Crane. Overnight resting may pose a risk of being predated and as such the terrestrial habitats such as deserts are not typically secure places for long-term resting. Resting behaviour is considered different to roosting which is where birds return to the same secure locations for longer-term stopover including for feeding, washing, preening or longer periods of rest/sleeping. Overnight or shorter-term resting may occur due to sudden changes in weather (e.g. rain or sandstorm, abrupt change in wind direction) that may disrupt birds during migration. Birds will then leave these resting areas as soon as conditions allow.

2.8.3 OHTL

No specific bird surveys have been completed for the proposed OHTL. A study of potential MSB collisions has been undertaken using the information from nearby windfarms and currently operational OHTLs. Three assessments were undertaken: number of deaths per year, number of deaths with and without diverters and compounded and cumulative risk assessment.

Number of Deaths Per Year

Following fatality monitoring at other wind farms locally, it has been predicted that, without the use of diverters, some MSBs will have a high number of collisions per year across the proposed OHTL lines as presented in Table 5. White Stork are predicted to have over 46 collisions per year without mitigation.

This high number is perhaps to be expected as over 200,000 White Stork have been recorded migrating through this area.

Table 5: Predicted Collisions with OHTL for Plots 1 and 2

Species	Predicted Collisions per year Plot 1 OHTL	Predicted Collisions per year Plot 2 OHTL	Predicted Collisions per year combined Plot 1 and 2 OHTL
Black Kite	5.34	3.94	9.28
Honey Buzzard	18.64	13.74	32.38
Long-Legged Buzzard	2.53	1.87	4.40
Marsh Harrier	1.51	1.12	2.63
Steppe Buzzard	7.60	5.60	13.20
Eurasian Sparrowhawk	2.09	1.54	3.64
Steppe Eagle	1.27	0.93	2.20
White Pelican	0.33	0.24	0.58
White Stork	26.89	19.82	46.71

3. CRITICAL HABITAT AND PRIORITY BIODIVERSITY FEATURES

3.1 General

Migratory Soaring Bird species triggering Critical Habitat and noted as Priority Biodiversity Features are noted below along with an individual reptile species. Criteria that were not triggered in both cases are not discussed further here and detailed information on this is present within the Critical Habitat Assessment.

3.2 Critical Habitat

A Critical Habitat Assessment (CHA) has been completed for the Project, using Criteria from EBRD's Performance Requirement (PR) 6, "Biodiversity Conservation and Sustainable Management of Living Natural Resources". This assessment, found within the Projects Critical Habitat Assessment document, confirmed that none of the habitats or species recorded exceeded thresholds in the criteria for Critical Habitat (CH) to be determined. A summary of the species assessed and Criteria for which CH has been triggered is presented below with detailed information is presented within the separate CHA document.

3.2.1 Plot 1

A Critical Habitat Assessment (CHA) has been completed for the Project and has confirmed that none of the habitats or species recorded exceeded thresholds in the criteria for Critical Habitat (CH) to be determined. A summary of the species assessed is presented below with detailed information is presented within the separate CHA document.

These species were not recorded staging or concentrated in numbers that would trigger CH however they were recorded on passage in the airspace above and therefore the Project will operate with the aim of avoiding all impacts to these species during its lifespan, and therefore achieve no net loss.

3.2.2 Plot 2

Whilst the majority of Steppe Eagle and Egyptian Vulture were recorded flying through the area, Plot 2 of the Project site is within the Gebel El Zeit IBA/KBA. The protected site is designated for migratory soaring birds due to its importance as a stopover feature and its location allowing the shortest crossing of the Gulf of Suez.

The migratory/congregatory species criterion described in the CHA section of EBRD PR6 is intended to trigger a CH determination only in areas that host continentally significant concentrations of migration activity. In many cases, these sites have already been designated as Important Bird Areas (IBAs) based on the KBA criteria and thresholds. Accordingly, the EAAA for the species was considered to be the boundary of the protected site. This EAAA boundary is discrete and focuses on a key part of the broad and long migration flyway and accordingly considered appropriate.

Steppe Eagle (13.7% of global population recorded in Spring) and Egyptian Vulture (2.1% of global population recorded in Spring) reached greater than 0.5% of the global population for a Critically Endangered or Endangered species. Given the significant association between the terrestrial habitats present within the Project site and this species, CH is triggered for both Steppe Eagle and Egyptian Vulture under Criteria 2 – Threatened Species (b).

When considering Migratory and congregatory species, under Criteria 2 – Migratory and Congregatory

Species (a), as discussed in the CHA assessment methodology, Critical Habitat can only be determined under this Criteria for sites that support populations in excess of their thresholds. Multiple migratory soaring bird (MSB) species were recorded in excess of the threshold of 1% of global populations.

Sites must be of critical importance for MSB species and airspace is not considered to be of critical importance unless it is at bottleneck sites, such as due to the presence of landscape features which 'funnel' flocks of soaring birds, or other important points along migration routes (e.g. sea crossing points). Sites are also considered important under this criterion where large aggregations of birds are present during key parts of their life cycle (e.g. stopover sites for roosting and feeding). The migratory/congregatory species criterion described in the CHA section of EBRD PR6 is intended to trigger a CH determination only in areas that host continentally significant concentrations of migration activity. In many cases, these sites have already been designated as Important Bird Areas (IBAs) based on the KBA criteria and thresholds.

The EAAA for all migratory soaring birds for this project is considered to be the IBA/ KBA as described above.

Species that are considered to trigger CH under Criteria iv are:

- Levant Sparrowhawk (80% of global population recorded in spring)
- Eastern Imperial Eagle (1.2% in spring)
- Steppe Eagle (13.7% in spring),
- Steppe Buzzard (1.1% in spring)
- White Stork (31.7% in spring and 30.2% in autumn)
- Honey Buzzard (7.3% in spring and 2.9% in autumn)
- Black Stork (4.6% in spring and 1.8% in autumn)
- Common Crane (1.4% in spring and 7.6% in autumn)
- White Pelican (8.0% in spring and 7.6% in autumn)

3.3 Priority Biodiversity Features

Birds

Plot 1 is used by five globally threatened species that are listed as IUCN Endangered or Vulnerable and are present over the Project area in numbers that exceed the threshold to be determined as PBF's and are vulnerable to impacts associated with Wind Farms and their infrastructure. Information in brackets shows the percentage of the global population, exceeding 1%, and the season recorded.

- Steppe Eagle (37.6% in spring);
- Egyptian Vulture (2.1% in spring);
- Eastern Imperial Eagle (1.64% in spring);
- Greater Spotted Eagle (0.013% in Autumn);

- Red-footed Falcon (0.001%); and
- Sooty Falcon (0.5% in autumn).

These species were not recorded staging or concentrated in numbers that would trigger CH however they were recorded on passage in the airspace above and therefore the Project will operate with the aim of avoiding all impacts to these species during its lifespan, and therefore achieve no net loss.

Species at risk of requiring offsetting following adaptive management approach consist of multiple Migratory Soaring Bird (MSB) species that have been recorded in numbers exceeding 1% of global populations. These include:

- Steppe Eagle (37.6% in spring);
- Egyptian Vulture (2.1% in Spring);
- Eastern Imperial Eagle (1.64 % in spring);
- White Stork (19% in spring and 1.2% in autumn);
- Black Stork (4.9% in spring);
- Great White Pelican (4.91% in spring);
- European Honey Buzzard (2.65% in spring and 1.99% in autumn)
- Steppe Buzzard (4.2% in spring);
- Short-toed Eagle (3.48% in spring);
- Lesser Spotted Eagle (1.72% in spring); and
- Levant Sparrowhawk (11.3% in spring and 1.17% in autumn).

The CHA concluded that the airspace is not considered to be of critical importance for these species and for all species, other than White Stork, no congregations on land triggering thresholds have been recorded. The project has updated layout design to avoid the area of use by White Stork and accordingly none of these species triggered CH.

The CHA has shown that the utilised airspace is not linked to an important terrestrial area and as such it is not considered to be Critical Habitat. However, the site has a very high level of movement of these species and there is the potential for impacts to be recorded at significant levels. The project has a requirement to meet international best practice and accordingly this document considers these species as though they meet the requirement of no net loss so that it can be confirmed that an offsetting option is present should it be required.

At Plot 2 one globally Vulnerable species, that is not already covered above by triggering CH, is seasonally present over the Project area and qualifies as a PBF: Greater Spotted Eagle. This species was not recorded staging or concentrated in numbers that would trigger critical habitat however was recorded on passage in the airspace above and therefore the Project will operate with the aim of avoiding all impacts to this species during its lifespan, and therefore achieve no net loss.

Reptiles

Egyptian Spiny-tailed Lizard and its burrows were recorded within the Project area during the surveys.

Despite its broad distribution, the Egyptian Spiny-tailed Lizard is assessed globally as IUCN Vulnerable, declining throughout its range, and poorly-known, and is therefore considered a PBF.

3.4 Summary

3.4.1 Plot 1

The species shown in *Table 6* are determined as Priority Biodiversity Features (PBFs) under Criterion 2 – Threatened Species, Range Restricted Species, or Congregatory/Migratory Species. Further detailed information on PBFs is present within the CHA.

Table 6: Summary of PBF Species

Species	Scientific Name
Steppe Eagle	<i>Aquila nipalensis</i>
Egyptian Vulture	<i>Neophron percnopterus</i>
Eastern Imperial Eagle	<i>Aquila heliaca</i>
Sooty Falcon	<i>Falco concolor</i>
Red-footed Falcon	<i>Falco vepertinus</i>
Great Spotted Eagle	<i>Clang clanga</i>
Egyptian Spiny-tailed Lizard	<i>Uromastix aegyptia</i>

3.4.2 Plot 2

Species triggering Critical Habitat and listed as Priority Biodiversity Features are noted in *Table 7* below. Species are listed only once in the table at their highest level of importance.

Table 7: Summary of CH and PBF Species

Critical Habitat Triggering Species	
Species	Scientific Name
Steppe Eagle	<i>Aquila nipalensis</i>
Egyptian Vulture	<i>Neophron percnopterus</i>
Levant Sparrowhawk	<i>Accipiter brevipes</i>
Eastern Imperial Eagle	<i>Aquila heliaca</i>
Steppe Buzzard	<i>Buteo buteo vulpinus</i>
White Stork	<i>Ciconia ciconia</i>
Honey Buzzard	<i>Pernis apivorus</i>
Black Stork	<i>Ciconia nigra</i>
Common Crane	<i>Grus grus</i>
White Pelican	<i>Pelecanus onocrotalus</i>
Priority Biodiversity Feature Species	
Species	Scientific Name
Greater Spotted Eagle	<i>Clanga clanga</i>
Egyptian Spiny-tailed Lizard	<i>Uromastix aegyptia</i>

3.5 Adaptive management

it is important to note that species were noted which were scoped out of triggering CH and PBFs within individual plots but were present moving through the site in numbers where an impact could occur and accordingly these species could be considered priority species should the results of the PCFM dictate.

4. IMPACTS

4.1 Construction

The impacts of relevance to the priority species covered by this BAP are:

- Egyptian Spiny-tailed Lizard
 - Killing / injuring due to construction works and vehicle collision); and
 - Habitat loss;
 - Disturbance (noise, lighting, dust and visual)
 - Poaching by construction staff

4.2 Operation

The impacts of relevance to the priority species covered by this BAP are:

- Birds
 - Collision with turbine blades; or,
 - Collisions or, more rarely, electrocutions on Project OHTL.
- Egyptian Spiny-tailed Lizard
 - Killing / injuring (vehicle collision of site staff)

5. MITIGATION

5.1 Mitigation Approach

The Project will follow the principles of the “mitigation hierarchy”. Those require that measures are taken to avoid creating E&S impacts from the outset of development activities, and where this is not possible, to implement additional measures that would minimize, mitigate, and as a last resort, offset and/or compensate any potential residual adverse impacts. The Project will seek to proactively address impacts and proposes to use an adaptive management approach (plan-do-check-act-replan) to reduce their potential severity.

Management is defined as any actions that correspond to the four elements of the mitigation hierarchy, as described below.

- Avoidance: actions taken to fully prevent impacts to biodiversity values, such as changing the spatial design of a project to prevent impacts in specific locations
- Minimization: actions taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided
- Rehabilitation/Restoration: actions taken to return areas to beneficial use and, if possible, assist in the recovery of the ecosystem that has been degraded, damaged, or destroyed
- Biodiversity Offset: measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people’s use and cultural values associated with biodiversity.

5.2 Proposed Mitigation

The overall approach to mitigation is detailed within the Project ESIA and BMP and should be referred to for detailed information. The broad approach pertaining to CH and PBR species of avifauna includes:

- Removal of attractants - Carcasses are not predicted within the area given the lack of grazing other than very occasional use by individual/small numbers of camels. Monitoring of previously used local dumping sites will be continued during the monitoring period to ensure this remains free of waste (in particular chicken carcasses);
- Operational shutdown on demand during migration periods;
- Operational fatality monitoring programme; and
- Adaptive management to adjust requirements following the above monitoring.

For other species, in this case only Egyptian Spiny-tailed Lizard, the approach includes;

- Works to take place outside of 50m from burrows where possible (and where within 100m will be monitored during construction).
- Immediately prior to construction surveys will be updated to add to known information on burrow

location;

- Capture and movement of individuals with burrows within 50m to a suitable receptor location, via a soft release, that;
 - Is within 10 km of the Project site;
 - Contain appropriate vegetation (both for food and cover).
 - Have suitable soil types to allow animals to dig and create new burrows.
 - Not already be close to carrying capacity for this species
- Safe clearance of disused burrows under watching brief of ecologist

6. RESIDUAL IMPACT

In assessing residual impact both Plot 1 and Plot 2 will be considered together as the whole Project.

Species triggering Critical Habitat or considered as Priority Biodiversity Features have been mitigated using the above structure. Due to requirements to achieve Net Gain for Critical Habitat species and No Net Loss for PBF species, where a residual impact from predicted collision is recorded an offset strategy is required. In order to aid production of appropriate targets for offsetting a number of resources have been identified from documents produced within the projects in the vicinity.

6.1 Birds

In order to provide an initial assessment of impacts a Collision Risk Model was undertaken for both Spring and Autumn season of 2022 and 2023. In order to take a precautionary approach to the offsetting requirement and account for potential annual variation in migration activity the peak level of collisions from each season was added to create an annual risk (*i.e.* the highest impact from Spring 2022 and 2023 added to the highest impact from Autumn 2022 to Autumn 2023). However, post construction fatality monitoring data from three local sites taken from 2021 and 2022 presented within the Biodiversity Action Plan and Offset Feasibility Study for Project Blade¹ indicated that using the model alone provides a risk of under assessing residual impact. Accordingly the residual impact assessment is based on the best available post construction fatality monitoring (PCFM) from local sites.

For the proposed OHTL data was available from eight OHTLs in the immediate vicinity of the Project OHTLs. For each of the separate OHTLs an adjusted (GenEst) number of fatalities of each species per km of OHTL was calculated. The proposed OHTLs stretch across the range of project sites and accordingly an average was taken across the eight sites to understand the typical number of fatalities for each species per km of OHTL. This figure was then used to multiply up the predicted number of collisions from the proposed 115km of Project OHTL.

Mitigation is being installed to reduce the operational impact of the OHTL on migrating birds including birds of prey, waterbirds and other large soaring birds. *Table 8* shows the difference in collision predictions with and without diverter mitigation. The results, based on local OHTL data, show that there is a reduction in collisions through the use of diverters and therefore this has been recommended for this project, along the length of the OHTLs.

¹ Actis Project Blade. Draft Biodiversity Action Plan and Offset Feasibility Study. Cambridge, UK: The Biodiversity Consultancy. 2023.

Table 8: Predicted Collisions with OHTL for Plots 1 and 2 with and without Diversers

Species	Collisions per year without diversers for Plot 1	Collisions per year with diversers for Plot 1	Collisions per year without diversers for Plot 1 and Plot 2	Collisions per year with diversers for Plot 1 and Plot 2
Black Kite	5.34	2.69	9.28	4.68
Honey Buzzard	18.64	9.89	32.38	16.32
Long-Legged Buzzard	2.53	1.28	4.40	2.22
Marsh Harrier	1.51	0.76	2.63	1.32
Steppe Buzzard	7.60	3.83	13.20	6.65
Levant Sparrowhawk	2.09	1.06	3.64	1.83
Steppe Eagle	1.27	0.64	2.20	1.11
White Pelican	0.33	0.17	0.58	0.29
White Stork	26.89	13.55	46.71	23.54

Further survey has been undertaken during 2023 within the three local windfarms and this is appropriate for attempting to add to the information on PCFM as noted within the Project Blade BAP. Whilst 2023 PCFM data is available in terms of actual collisions recorded no reports are available providing information on the factors required to adjust this number (*e.g.* scavenger removal rates and searcher efficiency).

Whilst this means that a detailed assessment of this data is not possible a high level assessment of the recorded fatalities per season was undertaken to understand if the most recent data (from Spring and Autumn 2023) has the potential to impact the likely residual impact amount based on the two previous years data. Due to the constraints in available data, this is a high level assessment, only using fatalities per season recorded, however the results of this show no significant changes in species being impacted or level of impact on each species. This assessment showed that impacts were recorded as being the same or reduced for a high majority of species: White Stork, White Pelican, Black Kite, Lesser Spotted Eagle, Marsh Harrier, Steppe Buzzard, Long-legged Buzzard, Pallid Harrier, Eurasian Sparrowhawk, Common Kestrel, Sooty Falcon, Levant Sparrowhawk and Booted Eagle. An increase was noted in 2023 when compared to 2021/22 for Steppe Eagle and Honey Buzzard (although an increase in Spring for Honey Buzzard was countered by a reduction in Autumn). Given the similar results the same figures have been used as presented within project Blade albeit updated to cover the appropriate number of WTG on this project.

Table 9 below shows the overall residual impact from the Project pe species. Based on the above the predicted total from PCFM data and three local wind farm sites was used to provide the turbine impact however where no collisions have been recorded but a risk was present through our CRM the highest figure (in this case CRM output) is chose. This figure is added to the above described impact figure for OHTL, based on data from eight local OHTLs, to produce the overall figure. It is important ot note that although this is a reasonable prediction the Project will not rely solely on this figure and will respond to PCFM results as part of the adaptive management approach.

Table 9: Residual impact of CH and PBF Species

Common Name	Species	CH Species	PBF Species	Max annual collisions from CRM	Predicted Annual Collisions based on Blade	Predicted Residual Collisions WTG	Predicted Residual Impact OHTL	Total Predicted Project Residual Impact
Eastern Imperial Eagle	<i>Aquila heliaca</i>	Yes	Yes	0.0022	0.00	0.0022	-	0.0022
Steppe Eagle	<i>Aquila nipalensis</i>	Yes	-	0.49	0.95	0.95	1.11	2.06
Sooty Falcon	<i>Falco concolor</i>	-	Yes	0.03	-	0.03	-	0.03
Egyptian Vulture	<i>Neophron percnopterus</i>	Yes	-	0.01	0.00	0.01	-	0.01
Levant Sparrowhawk	<i>Accipiter brevipes</i>	Yes	-	0.24	0.00	0.24	1.83	2.07
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Yes	-	3.43	0.95	3.43	6.65	10.08
White Stork	<i>Ciconia ciconia</i>	Yes	-	18.88	16.66	18.88	23.54	42.42
Black Stork	<i>Ciconia Nigra</i>	Yes	-	0.08	0.00	0.08	-	0.08
White Pelican	<i>Pelecanus onocrotalus</i>	Yes	-	1.57	0.00	1.57	0.29	1.86
Honey Buzzard	<i>Pernis apivorus</i>	Yes	-	7.66	10.94	10.94	16.32	27.26
Red-footed Falcon	<i>Falco vespertinus</i>	-	Yes	0.00	0.00	0.00	-	0.00
Common Crane	<i>Grus grus</i>	Yes	-	0.00	0.00	0.00	-	0.00
Greater Spotted Eagle	<i>Clanga clanga</i>	-	Yes	0.00	0.00	0.00	-	0.00
Short-toed Eagle	<i>Circaetus gallicus</i>	-	-	0.07	-	0.07	-	0.07
Lesser Spotted Eagle	<i>Clanga pomarina</i>	-	-	0.04	0.00	0.04	-	0.04

6.2 Reptiles

Spiny-tailed Lizard are a PBF with potential for impacts associated with direct killing/injuring and habitat loss ,however the mitigation is adequate to ensure that there are no predicted residual impacts for the species across the Project area and accordingly no offsetting will be required.

7. OFFSET STRATEGY

7.1 General

Offsetting is considered for all CH and PBF species to cover any changes in residual impact following post construction fatality monitoring. The offset strategy is underpinned by the EBRD PR6² note that states “The core principles of biodiversity offsets are to:

- deliver conservation gains beyond those that would have occurred in the absence of the offset;
- conserve biodiversity features that are the same as, or in some cases of higher conservation priority than, those impacted by the planned development; and
- generate conservation benefits that endure as long as the residual impact of the project.”

The guidance note goes on to detail that “Biodiversity offsets can take the form of conservation projects that restore and protect areas degraded by impacts unrelated to the planned development or that avert the loss of biodiversity from impacts unrelated to the planned development.”

Within the projects offset strategy these overall aims are also guided by an IUCN Independent report on biodiversity offsets³ states that “four of the most discussed technical principles in biodiversity offsetting are limits to offsetting, additionality, equivalence, and permanence.” Adding the definitions as:

- Limits to offsetting recognizes that not everything can be offset – such as species extinction. It therefore refers to whether losses are so great in type or amount that no offset could appropriately compensate for them.
- Additionality requires that offset gains are caused by offset actions and not by other factors. In other words, the offset gains would not have happened in business-as-usual scenarios.
- Equivalency requires that the balance of losses and gains represents a fair exchange. This requires quantitative measurement of losses and gains to biodiversity and the scaling of compensatory gains. This includes consideration of trading systems such as like-for-like and like for better/“trading up”.
- Permanence (or longevity) refers to ensuring that gains last at least as long as impacts.

7.2 Offsets requirement

Whilst offset requirements will be updated during the PCFM adaptive management strategy the proposed offset requirements are:

- 1 bird per year: Eastern Imperial Eagle, Sooty Falcon, Egyptian Vulture, Black Stork, Red-footed Falcon, Common Crane, Greater Spotted Eagle, Short-toed Eagle and Lesser Spotted Eagle;
- 2 birds per year: Steppe Eagle, Levant Sparrowhawk, White Pelican;
- 10 birds per year: Steppe Buzzard

² EBRD 2023. Guidance note. Performance Requirement 6: Biodiversity conservation and sustainable management of living natural resources

³ ICMU IUCN (2012) Independent report on biodiversity offsets. Prepared by The Biodiversity Consultancy.

- 27 birds per year: Honey Buzzard
- 42 birds per year: White Stork

7.3 Aggregated Biodiversity Offsets

Given the location of the project there are a number of projects locally at a variety of stages from proposed through to operational. This means that the preferred approach of the project is not to consider such projects in isolation with an aim of choosing an aggregation of offset plans as a strategy.

Aggregation of offset plans is discussed in The World Bank Group Biodiversity Offset: User Guide⁴ and considers the use of systematic planning and implementation of offsets that would mean

“(i) planning one or more relatively large offset sites that would compensate for multiple original projects; (ii) pre-selecting offset areas to facilitate support from development project sponsors; or (iii) otherwise promoting the use of biodiversity offsets through some type of national or sub-national government planning framework. It is clear that there are advantages to aggregated offset plans.” The benefits include:

- Reduced transaction costs;
- Increased developer participation;
- Addressing cumulative impacts;
- Optimising site selection; and
- Improved Land use planning.

At this stage initial discussions have taken place with Project Blade about aggregation of offsetting strategies however as this is not a fully confirmed situation the offset strategy is considered stand alone at this point with further discussions to continue around aggregation. It is important to note that if the project is successful in working alongside Project Blade the offset requirements of this project will remain standalone and the sum of the targets of both projects must be achieved.

7.4 Consideration of offset options

Given the aim of an aggregated approach to offsetting the options for consideration have had a crossover with projects also covered within the Project Blade Action Plan. That said a standalone assessment of the options has been undertaken and new options considered where appropriate.

7.5 Offset Project Details

7.5.1 General

This section provides a summary of the considered offset options (note that this section references the Project Blade BAP study produced by The Biodiversity Consultancy (TBC) as well as communication with

⁴ Ledec, G.C. & Johnson, S.D.R. (2016) Biodiversity offsets: a user guide (Working Paper No. 110820). World Bank Group, Washington, D.C.

stakeholders.

7.5.2 Retrofitting of power lines in Egypt with Bird Flight Deflectors

Stakeholder and Location

NCE; throughout Egypt

Description of project

Known high impact power line locations are present across the country where bird fatalities due to collision are high and the aim of the project is to retrofit these locations with Bird Flight Deflectors to reduce fatalities.

Target species

By retrofitting a total of 100 km of overhead transmission lines in the Gulf of Suez area, NCE believe, based on data from collision fatality searches they can achieve an annual offset for all targeted quantities of Great White Pelican, Black Stork, and Common Crane with significant coverage of Black Kite, Honey Buzzard, Steppe Buzzard and White Stork.

Feasibility

This work has begun with a similar project in the region and so has a clear pathway to being implemented with outcomes that are predictable based on appropriate collision survey data. All species noted as target species have been recorded as fatalities by NCE during monitoring.

7.5.3 Illegal Killing of Birds Programme (IKB), Egypt

Stakeholder and Location

NCE; throughout Egypt

Description of project

This IKB programme is designed to reduce the impact on birds of illegal hunting and taking of birds. The programme has to date targeted two protected areas where illegal killing and taking of birds occurs. Currently police are informed and birds that are confiscated are rehabilitated and released as appropriate. Going forward the continued use of known social media platforms and trading sites along with market places will be used to monitor.

Target species

Typically this work has targeted White Pelican, with a known result of saved birds per year recorded. The

work has also saved Griffon Vulture, Egyptian Vulture, Peregrine Falcon and Common Kestrel showing it to be feasible to cover wider species. Based on consultation with NCE, using their research in market trade of birds, NCE consider that this work has potential to cover offsetting requirements species this could target include Long-legged Buzzard, Marsh Harrier, Steppe Eagle, Eastern Imperial Eagle, Sooty Falcon, Egyptian Vulture and Short-toed Eagle.

Feasibility

This work has begun through NCE and has proven results so has a clear pathway to being implemented. Further budget is required for the programme to cover a wider range of species and target locations and so the clear benefits are present. It is important to note that the results of the work (in terms of species impacted) will be lead to a degree by those undertaking the illegal activity. Although species can be targeted, by targeting specific locations, wider projects should be considered to ensure a range of options are available for the species concerned. All species noted as target species have been highlighted as risk species through market monitoring by NCE.

7.5.4 Retrofitting of power lines in Jordan

Stakeholder and Location

RSCN; throughout Jordan

Description of project

The 2023 paper by Tareq Qaneer and Dimitar Demerdzhiev highlights a number of known high impact power line locations across the country where bird fatalities due to electrocution are high. One example of which is a low voltage cable adjacent to a rubbish dumping area. The aim of the project is to retrofit these locations in order that electrocution is not possible (either by retrofitting insulation or by undergrounding where appropriate).

Target species

During three seasons of work 197 carcasses were recorded of White Stork with lower numbers also recorded of Black Kite, Egyptian Vulture, Short-toed Eagle, Peregrine, Steppe Eagle, Little Egret and Golden Eagle.

Feasibility

This work has been carried out in other locations with proven positive impacts on stopping electrocution at high risk poles.

7.5.5 Supporting monitoring and conservation at the Batumi bottleneck, Georgia

Stakeholder and Location

Batumi Raptor Count; Batumi, Georgia

Description of project

Previous work has been undertaken by BRC to engage with illegal hunting of migratory birds. The impact of this has been positive in the location and the project has scope to increase this outreach work to a wider area and increase the projects impact.

Target species

Levant Sparrowhawk, Pallid Harrier and a secondary benefit to Greater Spotted Eagle, Steppe Eagle, Honey Buzzard and Eastern Imperial Eagle.

Feasibility

Consultation non this work has begun as part of two ongoing projects and with this moving forward there is a clear route to working together on a project that has already shown proven gains. All specie are recorded travelling through the site in high numbers and are accordingly potentially positively impacted by the proposed works.

7.5.6 Habitat restoration of wetlands and nest protection in Polesia

Stakeholder and Location

BTO; Ukraine Belarus

Description of project

Restoration and protection of wetland habitat along with nest protection of Black Stork and Greater Spotted Eagle.

Target species

Black Stork, Greater Spotted Eagle and Common Crane.

Feasibility

A concern is also raised about the change in the political situation surrounding the work in Polesia since

the previous report. There is undoubtedly a need for funding of this project, and the previous report stated that “At the time of preparing this BAP (July 2022) the war in Ukraine does not appear to be having a major impact on the work of the project, activities” but further investigation into the implementation of this work is required.

Consultation on this work has begun as part of two ongoing projects and there is progress with a proposed route forward. That said there is a concern is raised about the change in the political situation surrounding the work in Polesia since the previous report. There is however undoubtedly a need for funding of this project and for the region as stability increases and the project has proven gains.

7.5.7 Support for rescue and recovery centre for birds, Malta

Stakeholder and Location

Birdlife; Malta

Description of project

Providing support towards the reduction of illegal killing of birds in Malta during migration. The project would target similar actions to that as above in Egypt looking at supporting law enforcement, public awareness and vigilance along with aiding recovery of injured birds.

Target species

Egyptian Vulture, Eurasian Buzzard, Honey Buzzard, Lesser Spotted Eagle and Pallid Harrier.

Feasibility

Previous work has been undertaken by Birdlife Malat to engage with illegal hunting of migratory birds. The impact of this has been positive in the location and the project has scope to increase this work.

7.5.8 Retrofitting of power lines, Egypt

Stakeholder and Location

Wider programme away from EETC; Egypt

Description of project

A known hotspot for powerline impacts is present at an airport distribution line. This is a private line and not controlled by EETC which is why it is separated from the above project. At this line bird are subject to impacts of both collision and electrocution meaning a wider range of species are impacted.

Target species

Great White Pelican, Black Stork, Common Crane, Black Kite, Honey Buzzard, Steppe Buzzard and White Stork.

Feasibility

Whilst the implementation of mitigation is physically feasible there may be more discussion required prior to making it happen. The main benefit of this work is that not only does it target collision there are records of regular electrocution due to the style of pylons and so a wider range of species are being impacted.

7.6 Next steps

The aim of the work to date has been to clarify, as far as is possible, the residual impacts of the project and to highlight the outline feasibility of achieving these offsetting requirements. This has been achieved through a standalone offsetting approach with the future potential to also take an aggregated approach alongside the Blade project.

The detail of these options, along with the potential for additional options can be evaluated in detail in the next phase of the BAP. In order to achieve this, it is appropriate that discussions are held with those involved in both other regional projects and the proposed offsetting projects.

Once this has taken place the exact level of support required, detailed proposed actions timetable of actions and monitoring indicators required to ensure both compliance with the proposed actions and confirmation of the outcome following correct implementation, can be agreed with the lenders.

8. MONITORING AND EVALUATION

Monitoring and evaluation indicators will be updated as part of the next stage of the BAP as more detailed consultation leads to exact agreed project details and aims and accordingly leads to agreed evaluation targets. It is worth noting that the key requirements of offsetting will change through the lifetime of the project as the need for offsetting updates adaptively to the real life carcass monitoring results. Monitoring and evaluation will as a minimum include:

- A program of monitoring proposed on site mitigation (*ie* effectiveness of the proposed shutdown on demand procedure)
- A full program of on site fatality monitoring, associated with both turbines and any proposed OHL, in line with latest best practice from the recent Good Practice Handbook⁵
- Monitoring of gains in supported projects using appropriate and lender agreed indicators, to include (but not be limited to);
 - recording the number of monitored nests in Polesia and success of breeding effort;
 - recording distance of power line retrofitted; and
 - recording birds collected and released through anti hunting reduction.

Results from monitoring will be periodically reviewed. If any updates to methodologies, protocol or impact assessments are required these will be included in reporting. As a further part of the work outline adaptive management options will be considered and presented.

⁵ IFC, KfW, EBRD 2023. Good Practice Handbook and Decision Support Tool. Post-construction Bird and Bat Fatality Monitoring (PCFM) for Onshore Wind Energy Facilities (WEFs) in Emerging Market Countries a

9. BAP IMPLEMENTATION PLAN

This document outlines a range of actions to begin the process of ensuring that offsetting is effective at the proposed project.

The first step is to ensure, through best-practice monitoring, evaluation and adaptive action that the proposed mitigation (shut down on demand) is properly implemented. This will also be the case should OHL details become clear the same process must be followed

Mitigation, monitoring and management measures for the operational phase of the Project will be detailed in a separate Operational BAP which will be prepared prior to the commissioning of the Project. This will include further work on the suite of offset options and the exact commitment that is required. Once this has been agreed the same adaptive process will be followed ensuring that the implementation of the proposed offsetting is taking place as proposed (with remedial action taken as required) and, as far as possible, the proposed level of offsetting is being recorded for each species as an output from the projects.

This BAP presents an outline for the appropriate offsetting but the Operational BAP will be a live document and even when the above listed updates have taken place it must still be updated regularly to ensure results of fatality monitoring and offsetting programmes can feed directly back into the offsetting plan.