

Turbine shutdown as an essential tool to prevent soaring bird fatalities at the Gulf of Suez

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SIEMENS Gamesa
RENEWABLE ENERGY



IN COLLABORATION

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EGYPT – a pioneer and unique programme was implemented to mitigate soaring bird fatalities on an operational 240 MW windfarm at the Gabel el Zayt region of the Red Sea.

The programme consisted of supplying a radar assisted shutdown on demand and bird monitoring system (RASB) and operating it between the months of February and May, from 2016 to 2020, in peak spring migration period.

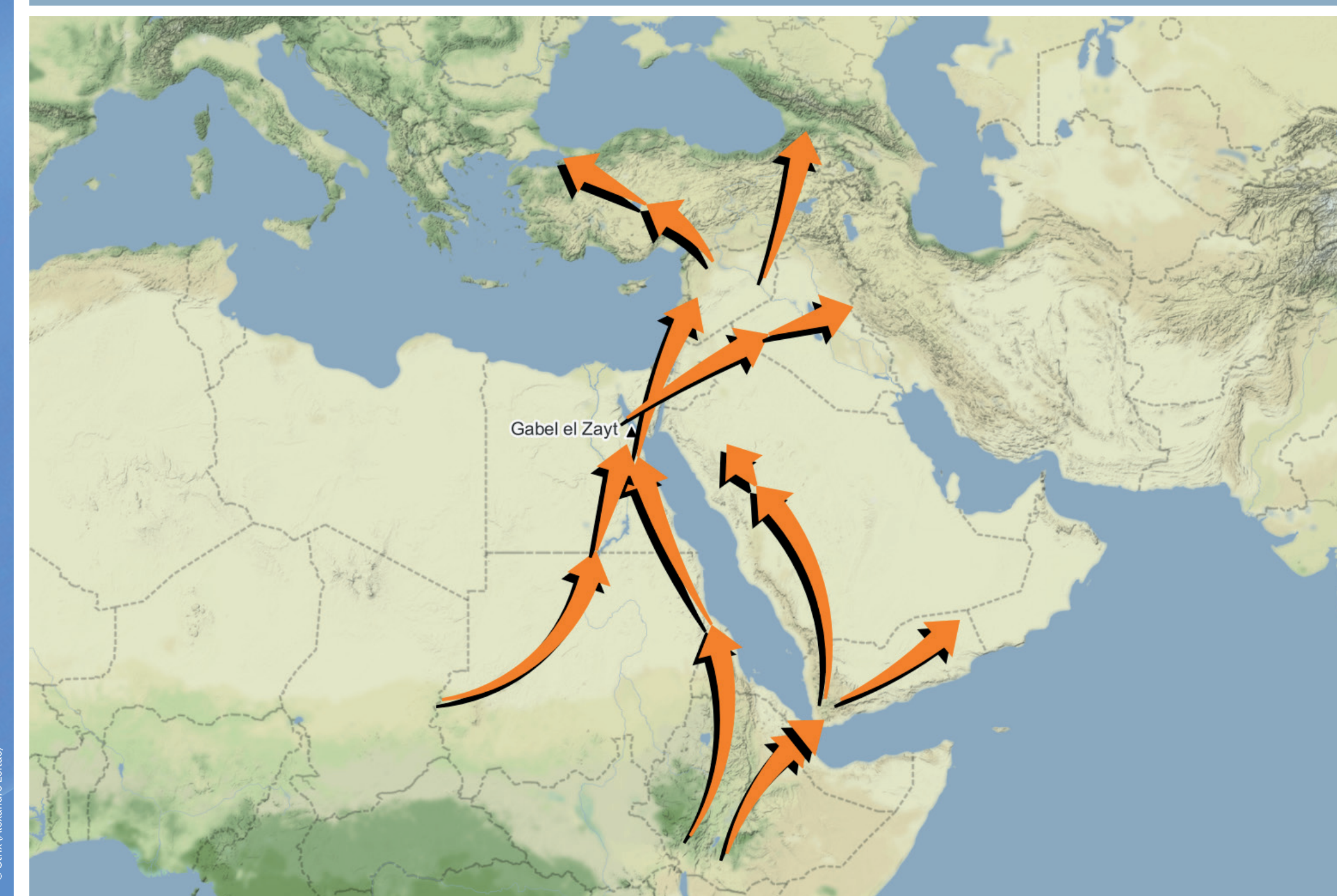
The Rift Valley-Red Sea flyway is the second most important flyway in the world for soaring birds.

The Gabel el Zayt area is classified as an important bird area and is an integral part of the RV-RS flyway. Its geographical configuration funnels migratory birds through a narrow land strip framed by the Red Sea mountains and the coastline.

An ambitious wind energy deployment is planned for the region.



The RASB programme has been devised for Gamesa and NREA in collaboration with KfW, EIB and EU, endorsed by Birdlife International and EEAA. A programme of such scale and detail is a first in Egypt.



Monitoring spring migration

A monitoring programme was established to determine daily migrating soaring bird flux through the wind farm.

40

species including seven globally threatened and two near threatened species

7 species

with more than 10 % of the flyway population migrating over the site

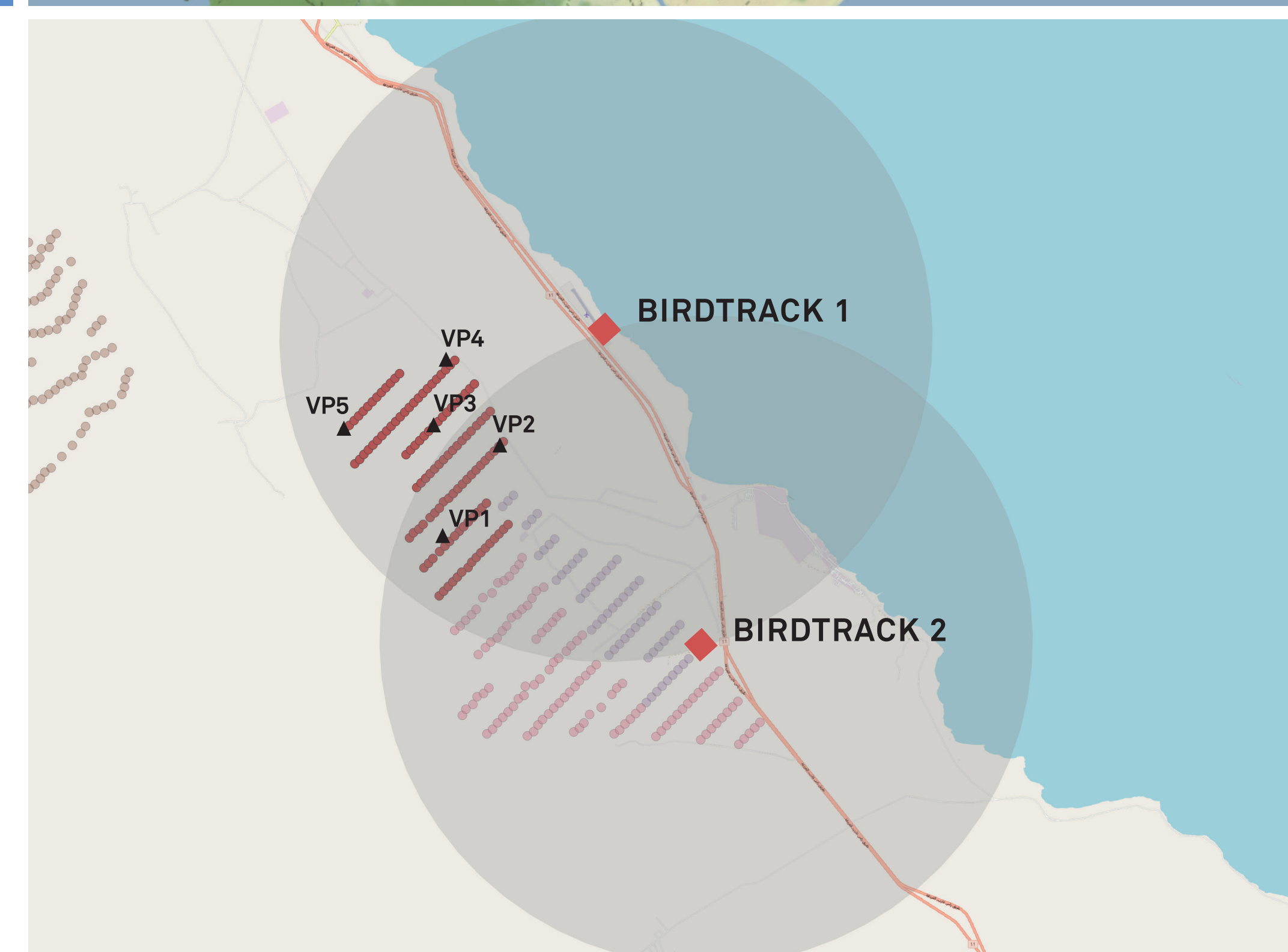
309,041

soaring birds flying across the wind farm every spring

17

species with more than 1 % of the flyway population crossing the wind farm at collision risk height

	Birds at collision risk height	Proportion of flyway population
Great White Pelican	13396	36,1
Levant Sparrowhawk	8754	33,6
White Stork	43834	7,8
Common Crane	801	7,7
Steppe Eagle	3672	5,3
Black Kite	9402	4,9
European Honey Buzzard	20120	4,4
Eurasian Sparrowhawk	106	2,7
Greater Spotted Eagle	24	2,7
Booted Eagle	261	2,2
Steppe Buzzard	28136	2,0
Black Stork	604	1,9
Short-toed Snake-eagle	250	1,7
Eastern Imperial Eagle	34	1,5
Pallid Harrier	31	1,4
Lesser Spotted Eagle	932	1,2
Egyptian Vulture	138	1,2



RASB Radar Assisted Shutdown on Demand and Bird Monitoring technology

Two x-band Birdtrack Radar Systems assisted the field observations at five vantage points located around and within the wind farm.

Shutdown on Demand

A selective turbine shutdown on demand programme was established to protect daily migrating soaring birds flying through the wind farm.

EEAA conducted the independent PCM carcass surveys.

21

observed fatalities found on PCM systematic and unsystematic searches

0.6%

missed energy production

5

years spring season

And what now?

RASB was a unique programme and a successful pioneer that set the standard for bird protection from operational wind farms in the Gulf of Suez.

It included a capacity building programme for local agencies and authorities highlighting the effectiveness of SOD to mitigate collision risk.

The results paved the way to the wide implementation of Active Turbine Management protocols and tender requirement procedures to mitigate bird fatalities in migratory flyways in the Middle East and North Africa region.

