



Final Report

Mid Size Sustainable Energy Financing Facility (MidSEFF)

Alibey Adası WPP Wind Power Plant: Non Technical Summary (NTS)

April 2018



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European Bank for Reconstruction and Development

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The European Bank for Reconstruction and Development (EBRD) launched in January 2011 a financing facility aimed at scaling up Renewable Energy and Energy Efficiency investments in Turkey, to increase the country's energy savings and decrease its carbon emissions. The Turkish Mid-Size Sustainable Energy Financing Facility (MidSEFF) launched by the EBRD with support from the European Investment Bank (EIB) and European Commission (source of the Technical Cooperation funds) will provide a total of EUR 1,600 million (which includes EUR 400 million provided by EIB) in loans through 7 Turkish banks for on-lending to private sector borrowers.

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Project Name: Alibey Adası WPP - Non Technical Summary (NTS)				Controlled Copy	
Rev. N.	Date	Description Amendment	Edited by	Revised by	Approved by
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Table of Contents

1.	General Plant Description.....	4
2.	Environmental and Social Baseline	7
2.1	Environmental description of the project area.....	7
2.2	Social condition of the project area	9
3.	Social and Environmental Impact	10
3.1	Land Use	10
3.2	Water	10
3.3	Waste	10
3.4	Birds and other species.....	10
3.5	Emissions: Noise and Particulate.....	11
3.6	Landscape.....	11

Acronyms

A.S.L	above sea level
dBA	decibel
EBRD	European Bank for Reconstruction and Development
ETL	Energy Transmission Line
WPP	Wind Power Plant
MidSEFF	Mid Size Sustainable Energy Financing Facility
NTS	Non-Technical Summary
PC	Project Consultant
EIA	Environmental Impact Assessment Report
The Sponsor	Umut İnşaat Turizm Sanayi ve Ticaret A.Ş.

1. General Plant Description

Alibey Adası WPP, which is composed of 9 turbines for total capacity of 30 MW Wind Power Plant, is located in Aegean Region of Turkey, İzmir Province, Bergama District and in Balıkesir Province, Burhaniye District. In Figure 1-1, a detailed map with the wind turbines' location are presented.

Alibey Adası WPP will be realized on a mountainous terrain of the western part of Turkey, project area whose altitude ranges of the area is between 1181-1264 m above sea level (A.S.L). The terrain is characterized by a quite complex orography, with a forestry area interesting the northern neighbourhood and a very sparsely vegetation covering the southern surroundings, classified as pasture with some isolated bushes.

The construction of Alibey Adası Wind Power Plant (WPP) started in September 2017. The project is expected to start operation in August 2018.

The Electricity Generation License has been amended on 4th January 2018 based on the final turbine configuration for the Alibey Adası WPP project. Table 1-1 presents the key aspects of the project.

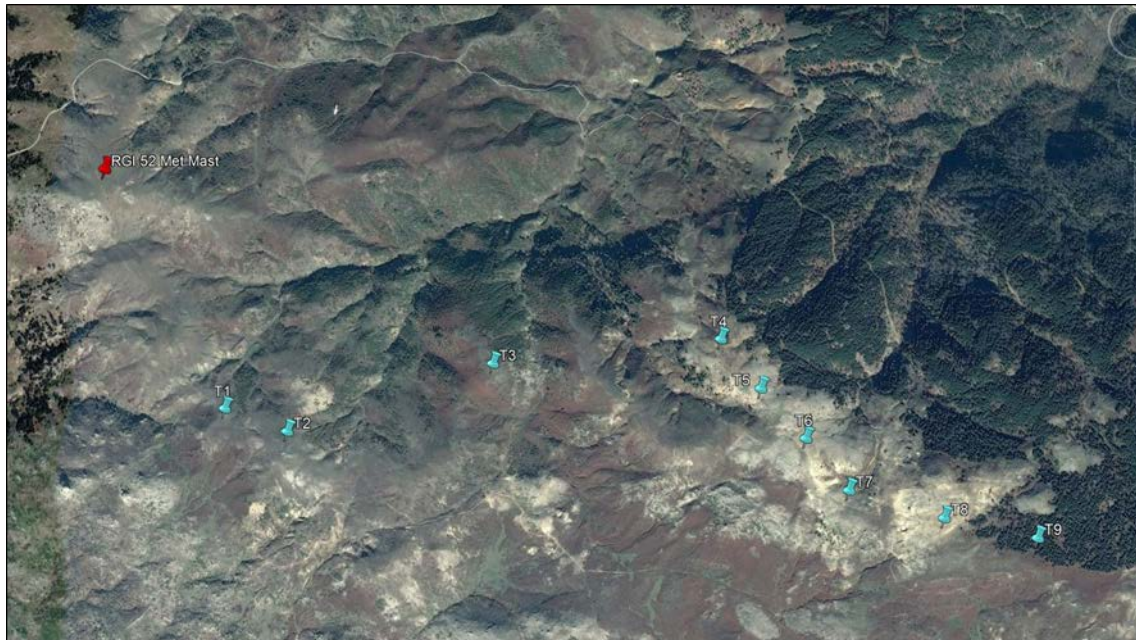


Figure 1.1: General view of project area (turbine location with the final turbine configuration)

Table 1-1: Key project summary data

Key Project Summary Data	
Project Borrower	Alibey Res Rüzgar Enerji Üretim A.Ş.
Project Sponsor	Umut İnşaat Turizm Sanayi ve Ticaret A.Ş
EBRD Transaction	The total project cost is EUR 34,094,662 including capitalized financing costs and working capital requirement. The proposed financial scheme includes debt financing in the amount of EUR 28,967,000 and the borrower's own contribution in the amount of EUR 5,127,662. The debt to equity ratio is approximately 85:15.
Project Description / Business Purpose:	The location of the Alibey Adası WPP will be in Aegean Region, very close to the border of İzmir Province, Bergama District, approximately 5 km North East of Güneşli and about 29 km North of Bergama.

	Alibeyres Rüzgar Enerji Üretim A.Ş. will realize a new Wind Power Plant on a high hilly site located in the western part of Turkey, planning the erection of 9 wind turbine generators for a total installed power of 30 MW.
Key Parties Involved:	EBRD Yapı Kredi Bankası A.Ş. Alibey Res Rüzgar Enerji Üretim A.Ş.
Project Name	Alibey Adası WPP
Project Type	Wind Power Plant
Base Case Scenario:	
Installed Capacity	30 MW
Annual Electricity Production	111.66 GWh/y

2. Environmental and Social Baseline

2.1 Environmental description of the project area

The wind farm is located on a mountainous area of İzmir and Balıkesir province in Aegean Region, on forestry and pasture lands. There is no other wind power plant around 10 km of the project site. There is a gold mine facility 2 km far from the turbine T3.

The project area is out of the main bird routes and there is not any bird sanctuary or any wildlife development area within the project area. The site is not located along an important migration route as shown in the figure below:



Figure 2.1: The Bird Migration Routes of Turkey and the Project Location (Flora & Fauna Ornithological & Bat Assessment Report, 2017)

The closest protected area is Kaz Dağları National Park which is located approximately 40 km to the Alibey Adası WPP Project site regarding the new turbine configuration. According to the flora and fauna assessment given in the EIA Report, there are 72 bird species under 28 families in the Project area. No endemic or critically endangered species are determined in the Project site based on flora and fauna study and the Ornithology Report.

The PC requires the preparation and implementation of the Environmental and Management and Monitoring Plan (considering Waste Management Plan) both for the construction and operation phases by considering the final turbine configuration. The PC requires the preparation and implementation of the visual impact assessment report and photo impact simulations from significant or sensitive viewpoints. The cumulative impact assessment report with particular reference to bird life and landscape considering the construction of turbines, roads, ETL and gold mine facility and the operation must be prepared.

The PC requires the preparation of the Community Health and Safety Plan as part of the H&S documentation (H&S Plan, Risk Assessment, etc.) to prevent any construction and operation related risks for community and take necessary measures on the site (fencing, warning signs, CCTV, and security staff, etc.) during the construction and operation phases.

Table 2-1: Environmental characteristics

ENVIRONMENTAL ASPECTS	PRESENCE/DISTRIBUTION	COMMENTS
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<p>Land use</p>	<p>The project area consists of forestry and pasture lands</p>	<p>Pre-Forestry Permit has been obtained. There is no privately owned area or any settlement currently exists on the project area. Final Forestry Permit must be obtained by the Sponsor for the forest lands. "Non-Agricultural Utilization Permit" must be obtained by the Sponsor for the pasture lands.</p>
<p>Water surface</p>	<p>N.A.</p>	<p>-</p>
<p>Protected area</p>	<p>Ayvalık Adaları Natural Park (approximately 48 km far away from the site) Kaz Dağları Milli Parkı (approximately 40 km far away from the site)</p>	<p>The defined distances to the project area are regarding the new turbine configuration. The proposed project has no interaction with any protected area.</p>
<p>Flora and Fauna</p>	<p>244 taxon for flora, 3 amphibians, 14 reptiles, 27 mammals and 72 birds identified in the project site</p>	<p>None of the fauna or flora species around the project area is endemic or critically endangered. According to the Flora & Fauna & Ornithological & Bat Assessment Report, birds and bat species, 17 bat species have been identified in/around the project region. There are 3 bat species classified as VU (Vulnerable), 1 specie classified as NT (<i>Nearly Threatened</i>) under the IUCN Red List. All the bat species are classified under Annex II of the Bern Convention. 53 bird species have been listed under Annex II under the IUCN Red List. Regarding the other species, there is 1 specie (<i>Testudo graeca</i>) listed as VU (Vulnerable) under the IUCN Red List. 8 species are listed under Annex II (<i>Strictly Protected Fauna Species</i>) of the BERN Convention. Bird monitoring campaign is required seasonally both for construction and the first two years of operation period. Flora & Fauna monitoring campaign is required seasonally both for construction and the first two years of operation period.</p>

2.2 Social condition of the project area

According to the year 2017 census the total population of the İzmir Province and Bergama District were approximately 4.279.677 and 102.961 people and the total population of the Balıkesir Province and Burhaniye District were approximately 1.204.824 and 58.775 people, respectively.

There is no privately owned area or any settlement currently exists on the project area. The closest residential area to the turbines which will be installed in the scope of the Alibey Adası WPP Project is Güneşli Village. The project area is hilly and overlooks to the northeast of the village of Güneşli and the distance between the turbines and the Güneşli Village is about 4.6 km.

At the project site and in close vicinity, there is no historically, culturally and archeologically important place.

3. Social and Environmental Impact

3.1 Land Use

Around 104,432 m² of the total project area is registered as forestry area and “Pre-Forestry Permit” has been obtained. Final Forestry Permit must be obtained by the Sponsor. There is no privately owned area or any settlement currently exists on the project area. Around 191,331 m² of the total project area is classified as pasture area. No permits have been obtained from the Sponsor regarding the pasture area. “Non-Agricultural Utilization Permit” must be obtained from the related Directorate.

3.2 Water

Based on the assumption that the daily domestic water requirement is 203 litres per capita, and considering 40 employees during the construction phase and 24 employees during the operation phase, the domestic water requirements were estimated as 8.12 m³/day and 4.87 m³/day, respectively. Domestic wastewater generated by workers will be collected in impermeable septic tanks constructed in line with local environmental regulation.

3.3 Waste

The solid waste that is expected to be generated at the Alibey Adası WPP project are excavation waste (from the preparation of tower foundations) and domestic solid waste (paper, plastics, glass, etc.). Daily domestic solid waste production is 1.08 kg per capita (TUIK 2014), for a total of 43.2 kg/day and 26 kg/day taking into account respectively 40 project workers during construction phase and 24 project workers during operation phase. The recyclable waste will be displaced in separate waste containers and will be sent by trucks which belong to Municipality and then to the Landfill area.

The excavation waste (app. 94,913 m³) will be used as filling material for the same excavation holes. However considering that the new configuration foresees a decrease of the number of turbines, it seems reasonable to assume that the impact due to excavation waste is fewer amounts than it was calculated in the EIA report. Since project area has a rocky-formation, some part of the excavation material will be extracted by blasting.

The mitigation measures described in the revised Landscape Repair Report (regarding the final turbine configuration) must be implemented. Landscape Repair Monitoring during construction and operation must be conducted by the sponsor and all necessary mitigation measures must be implemented, if any. The PC requires the preparation of the tree cutting plan during the monitoring activities related to the Landscape Repair Monitoring. Topsoil will be temporarily stored at the construction site and will be re-used. Dust prevention measures should be taken into account during excavation works. Excess material should be managed in compliance with the local regulations.

Medical waste that may be generated on site will be handled in compliance with the “Regulation of the Medical Waste Control”.

Waste oil arising from the vehicles during the construction phase should be delivered to licensed companies to be disposed as stated in “Regulation on Control of Waste Oil”.

3.4 Birds and other species

No endemic or critically endangered species were determined in the Project site.

Regarding the birds and bat species, 17 bat species have been identified in/around the project region. There are 3 bat species classified as VU (Vulnerable), 1 specie classified as NT (*Nearly Threatened*) under the IUCN¹ Red List. All the bat species are classified under Annex II of the Bern Convention. 53 bird species have been listed under Annex II under the IUCN Red List.

¹ IUCN Red List: International Union for the Conservation of Nature

Regarding the other species, there is 1 specie (*Testudo graeca*) listed as VU (Vulnerable) under the IUCN Red List. 8 species are listed under Annex II (*Strictly Protected Fauna Species*) of the BERN² Convention.

In addition, the Project site is not located on the main migration route. According to the Flora & Fauna & Ornithological & Bat Assessment Report of the Alibey Adası WPP project, there are no interference with natural protected areas. The mitigation measures stated in the EIA Report must be followed and implemented during all project phases.

According to the Flora & Fauna & Ornithological & Bat Assessment Report, it is stated that monitoring activities must be sustained in order to protect the bird species (considering the bat species) in or around the project site. The PC requires the implementation of a bird monitoring campaign (considering bat monitoring) during construction phase and for the first 2 years of the operation phase considering the new turbine configuration. The PC requires the preparation and implementation of a flora & fauna monitoring campaign during construction phase and for the first 2 years of the operation phase considering the new turbine configuration.

3.5 Emissions: Noise and Particulate

Noise emissions will be generated during construction due to equipment/machinery operation and noise emissions are expected during operation due to turbines working. According to the related EIA Report, the calculated noise level from a point which is 640 m far away from the WPP border is 54.7 dbA which is in-compliance with the national limit (70 dbA). The project area is far enough to the residential areas and noise measurement has been required during the operation in case of any complaint. However, the PC requires a noise measurements prior to the operational period and during operation when all turbines are in operation and in any case of grievance. Noise modelling study must be revised regarding the new turbine configuration/turbine models before construction phase.

Dust will be generated from earth-moving and material storage, and air emission from the operation of construction machinery and equipment. According to the EIA Report, the dust emissions will be 0.63 kg/hour during construction works (lower than the limit value of 1 kg/hour). All proposed mitigation measures in the EIA Report must be implemented.

During operation, minimal dust emissions can occur not directly associated with plant operation but with traffic, maintenance etc.

3.6 Landscape

Landscape is usually a sensitive aspect for these kind of projects. The Consultant requires to the Sponsor the implementation of the revised of the Landscape Repair Report and the preparation of a dedicated study which includes a visual impact assessment and the photo-impact simulations from significant or sensitive viewpoints (such as Güneşli Village). The study results must also be shared with the public during disclosure meetings with the stakeholders.

Table 3-1: Impact Quantification

COMPONENT	IMPACT	QUANTIFICATION
Land use	<u>Use of the Forestry Land</u> <u>Use of the Pasture Land</u>	“Pre-Forestry Permit” for the total area of 104,432 m ² has been received. Final forestry permit should be obtained by the sponsor. 191,331 m ² of the total project area is classified as pasture area. No permit has been obtained. “Non-Agricultural Utilization Permit” must be obtained by the Sponsor.
Water	<u>Utilization and Discharge</u>	8.12 m ³ /day during the construction phase

² BERN Convention: the Convention on the Conservation of European Wildlife and Natural Habitats

		4.87 m ³ /day during the operation phase (assuming 40 workers during construction and 24 workers during operation)
Waste	<u>Production of solid waste</u>	43.2 kg/day in the construction phase and 26 kg/day in the operation phase (assuming 40 workers during construction and 24 workers during operation)
	<u>Excavation waste</u>	94,913 m ³ (The majority of excavation waste will be reused. Excess material must be managed in compliance with the local regulations)
Birds and other fauna and flora species	<u>Interference with migration routes/interference with protected species-</u>	The Project site is not located on the main migration route. The PC requires the implementation of a bird monitoring campaign (considering bat monitoring) during construction phase and for the first 2 years of the operation phase considering the new turbine configuration. The PC requires the preparation and implementation of a flora & fauna monitoring campaign during construction phase and for the first 2 years of the operation phase considering the new turbine configuration.
Emissions	<u>Noise</u>	54.7 dBA in construction phase < local reg. limit of 70 dBA 48 dBA (according to the noise model study conducted for 25 turbines) in operational phase < local reg. limit of 70 dBA
	<u>Particulate</u>	0.63 kg/h (local reg. limit = 1 kg/h)
Landscape	<u>Changing in the aspect of the area</u>	The PC requires preparation of a visual impact assessment and the photo-impact simulations from significant or sensitive viewpoints. The mitigation measures described in the revised Landscape Repair Report (regarding the final turbine configuration) must be implemented. Landscape Repair Monitoring during construction and operation must be conducted by the sponsor and all necessary mitigation measures must be implemented, if any. The PC requires the preparation of the tree cutting plan during the monitoring activities related to the Landscape Repair Monitoring.

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