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*HACI BEY WIND POWER PLANT*

*Non Technical Summary  
Environmental and Social Impact Assessment (ESIA) Report*

*BALI RÜZGAR ELEKTRİK ÜRETİM SANAYİ VE TİCARET A.Ş.  
January 2021*

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## Abbreviations

Abbreviation	Definition
BAP	Biodiversity Action Plan
EIA	Environmental Impact Assessment
REMEN	Regulation on Evaluation and Management of Environmental Noise
ESIA	Environmental and Social Impact Assessment
ESAP	Environmental and Social Action Plan
EBRD	European Bank for Reconstruction and Development
LRP	Livelihood Restructuring Plan
IFC	International Finance Corporation
CIA	Cumulative Impact Assessment
WPP	Wind Power Plant
TurkSTAT	Turkish Statistical Institute

## CHAPTER I PROJECT DEFINITION

### I.1 Project History

Upon the application made by *Bali Rüzgar Elektrik Üretim San. ve Tic. A.Ş.* (Project Owner) to the Energy Market Regulatory Authority (EMRA), the Energy Production License (License No: EÜ / 3648-5 / 2213) was received on January 18, 2012. The name of the project, which was Çakıl WPP in the said generation license, was changed to Hacı Bey WPP with the approval of EMRA dated 02/12/2019 and no: E-53406. Subsequently, due to the technical problems experienced in the site where the license was received, the Project Owner applied to EMRA for amendment of the power plant coordinates in the license and the request for the amendment of the plant site coordinates was found appropriate with the EMRA Board Decision dated 28/02/2020 and no: E-10741.

Hacı Bey Wind Power Plant project was designed to have an installed power of 54.0 MW<sub>m</sub> / 52.5 MW<sub>e</sub> with a configuration consisting of a total of 18 wind turbines in the initial stages of the project. In May September 2020, the EIA application file was submitted to the General Directorate of EIA Permit and Supervision of the Ministry of Environment and Urban Planning and the EIA process was started and a **positive EIA** decision was taken in September 2020.

However, in the later stages of the project, as a result of the discussions with the General Directorate of Forestry, it was agreed that the impact of the project on the forest areas should be minimized and that the positions of the remaining turbines in the 3 closed forest areas should be changed. In addition, as a result of the feasibility studies updated by the project owner, the models V136 and v162 of VESTAS brand were selected instead of the turbine models of Enercon, and the installed power was determined as 65.2 MW<sub>m</sub> / 52.5 MW<sub>e</sub> by increasing the mechanical power without changing the electrical power of the project, including 12 turbines in total. Below is the breakdown of the turbines to be used within the scope of the project according to their capacity.

**Table I-1** Project Capacity Breakdown Information

No	Turbine Capacity	Number of Turbines
1	3,6 MW <sub>m</sub> / 2,0 MW <sub>e</sub>	1
2	5,6 MW <sub>m</sub> / 4,84 MW <sub>e</sub>	1
3	5,6 MW <sub>m</sub> / 4,566 MW <sub>e</sub>	10
<b>Total</b>	<b>65.2 MW<sub>m</sub> / 52,5 MW<sub>e</sub></b>	<b>12</b>

Thanks to this change in the number of turbines, the transportation road that should be opened within the scope of the project was reduced by 2 km, and thus the need for a land use of 20,000 m<sup>2</sup> was eliminated. According to the calculations, 1900 fewer trees were cut down in the project.

The decrease in the number of turbines has also reduced the amount of excavation that will be realized within the scope of the project. This will result in about 40,000 m<sup>3</sup> less excavation and this design change will result in reduction of other negative effects such as dust emission, etc.

As the footprint of the project decreases, the energy density will increase, which will reduce the amount of transport routes and inter-unit wiring at the plant site. As a result, cable losses, etc. will be prevented, operating and maintenance costs will be reduced, and the project will become even more economically sustainable.

As for this revision, an application was made to the General Directorate of EIA Permit and Supervision of the Ministry of Environment and Urban Planning on September 15, 2020, and deemed appropriate as a result of the reviews.

The Project Owner has assigned the company "*Ekonom Çevre İ.S.G. Ölçüm Hiz. Müh. Taah. San. Tic. Ltd. Şti.*" In July 2020, for preparing the Environmental and Social Impact Assessment in compliance with the IFC Performance Standards. The following were prepared within the scope of the mentioned study:

- This Non Technical Summary,
- Environmental and Social Impact Assessment Report
- Biodiversity Action Plan
- Stakeholder Engagement Plan
- Environmental and Social Action Plan.

The above-mentioned reports prepared in the process of informing the public of the project will be announced to the public.

## I.2 Location of the Project and Close Settlements

Hacı Bey Wind Power Plant is located within the administrative borders of Çatalca district of İstanbul province. The distance of Çatalca district center to the project area is approximately 30 km, and the project area is located in the north west of Çatalca.

The license area is accessible from the old İstanbul-Kırklareli road. Access to the project site can be provided by following İncegiz, Kabakça, İhsaniye, Gümüşpınar and Karamandere village roads respectively from the center of Çatalca District. Additional transport routes will be opened in some areas to access turbine sites.

The total area of the wind power plant is 920 ha and **12 wind turbines** and switchgear sites will be placed in this area.

The nearest settlements to the project area are Karamandere and Karamanköy neighborhoods, which are connected to Çatalca district. The nearest settlement to the project area is the house located in the Karacaköy neighborhood, and the distance to this house is about 250 m. In addition, there is a sports activity area about 1400 m south east of the project.

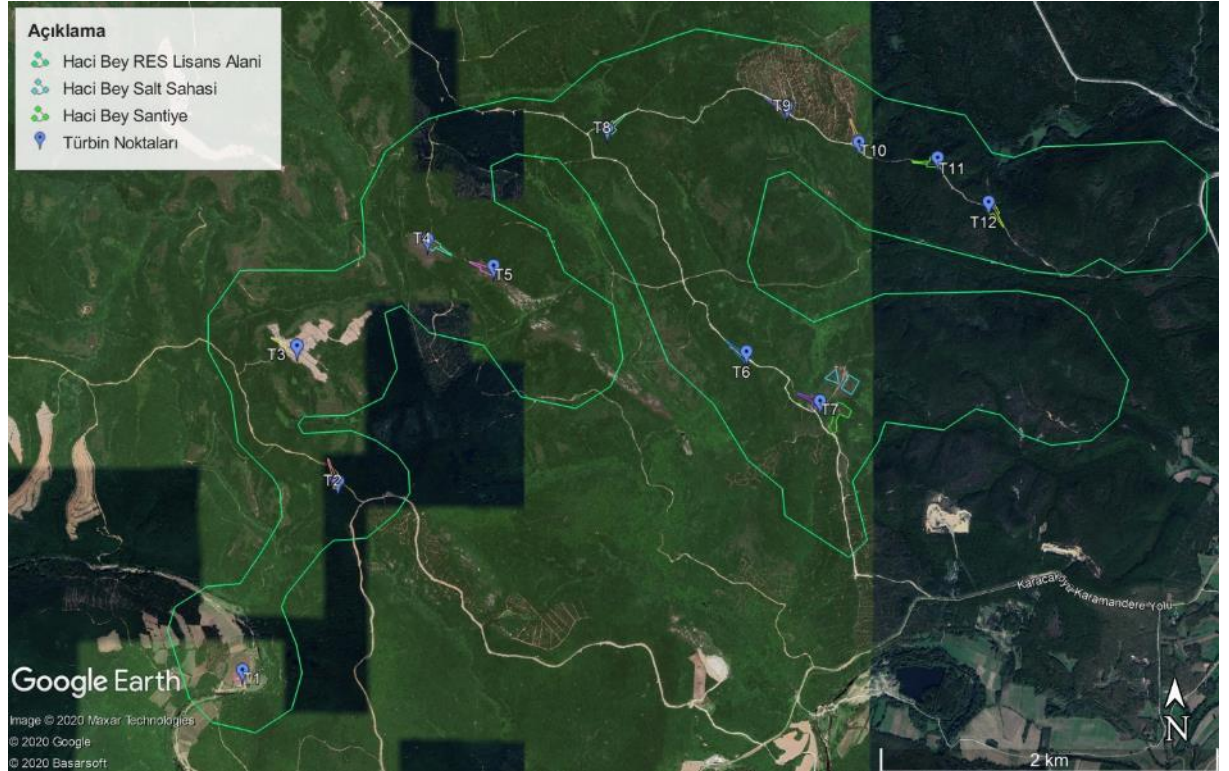


Figure I-1 Project Area Satellite Images

## I.3 Current Land Use

While the majority of the License Area consists of forest land owned by the state, there are also parcels registered as agricultural land. In the assessment made by the İstanbul Regional Directorate of Forestry

for the project area, it was determined that 9,063,624.31 m<sup>2</sup> of the wind power plant area remained in the forest area. Within the scope of Hacı Bey WPP Project, construction activities will be carried out in approximately 0.50 ha area for each turbine.

#### I.4 Labour Force Requirement

Approximately 40 people are expected to work during the construction activities of the project and 8 people during the operation phase. Bali Rüzgar Elektrik Üretim Ticaret AŞ will demand that the Contractor company / companies that will provide services for construction works give priority to the local people during employment as much as possible.

Both the project owner and contractor companies will be responsible for equal treatment of employees, child employment, working age, etc., as required by the Labor Code, international conventions and IFC PS 2 at the construction and operation stages.

#### I.5 Project Time Table

It is expected that the preliminary preparation period of the Hacı Bey Wind Power Plant project (expropriation, forest permit, zoning plan work) will take about 10 months, and the land preparation and construction period will take about 24 months. The operating period of the project is equivalent to the validity period of the Generation License.

The timetable table of the project is presented below.

ITEMS	Preparation Phase					Construction Phase					
	0-3	03-06	06-09	09-12	12-16	16-20	20-24	24-28	28-32	32-36	36-40
<b>License - Project Works</b>											
Amendment of Generation License											
EIA Positive Decision											
Expropriation Works											
Obtaining the Necessary Permits (Forest etc.)											
Zoning Plan											
Final Application Projects											
<b>Construction Works</b>											
Arranging of Turbine Sites											
Excavations of Turbine Sites											
Assembly Works and Laying of Underground Cables											
Construction of Switchyard and Administration Units											
Trial Generation and Sales											



## CHAPTER II ASSESSMENT AND MANAGEMENT OF POSSIBLE ENVIRONMENTAL AND SOCIAL IMPACTS

Assessment of environmental and social impacts was carried out using national / international literature sources together with expert opinions.

The importance of environmental and social impacts is determined by the sensitivity of the recipient / resource exposed to the impact and the size, duration and probability of the project's impact on the recipient / resource in question.

### I.1 Air Quality

The impact of project activities on air quality will occur during the land preparation and construction phase and will be short-term. Air emissions during the construction phase of the project will be due to earthworks, including excavations, loading and unloading of excavated materials, construction / improvement of new interior access roads, and emissions from vehicles during construction work.

Exhaust emissions from construction equipment and vehicles will be limited due to the nature of the project activities.

An air quality modeling study was performed for the construction phase dust emissions of the project using AERMOD View - Gaussian Plume Air Dispersion Model software. Contribution values to air pollution likely to be seen in the closest sensitive building are given in the table below.

**Table II-1** Contribution values to air pollution likely to be seen in the closest sensitive building

Settlement Name and Coordinate	Particulate Matter $\mu\text{g}/\text{m}^3$		Settling Dust $\text{mg}/\text{m}^2/\text{day}$	
	24 Hours Maximum CVAP	Annual Maximum CVAP	Monthly Maximum CVAP	Annual Maximum CVAP
T1 250 Southwest Farm House 608283,49; 4583252,99	12,518	0,941	21,560	1,958
Karamandere Center 4609424,62 ; 4581463,87	0,870	0,073	2,410	0,126
Football field 614798,15 ; 4585291,50	1,619	0,024	0,460	0,019

Working under controlled conditions within the scope of the project, the contribution values to air pollution, which are likely to be seen in the closest sensitive structure, meet the relevant national and IFC standards.

During the operation phase of the project, there will be no air emissions, except for potential emissions from the diesel generator (one), which will be available for power failure situations. Therefore, the operating stage will not have any significant impact on air quality.

An **Air Quality and Greenhouse Gas Management Plan** specific to the project will be prepared and implemented. An effective complaint mechanism will be established at the stage of land preparation and construction and action will be taken in accordance with the complaints and warnings from the local people.

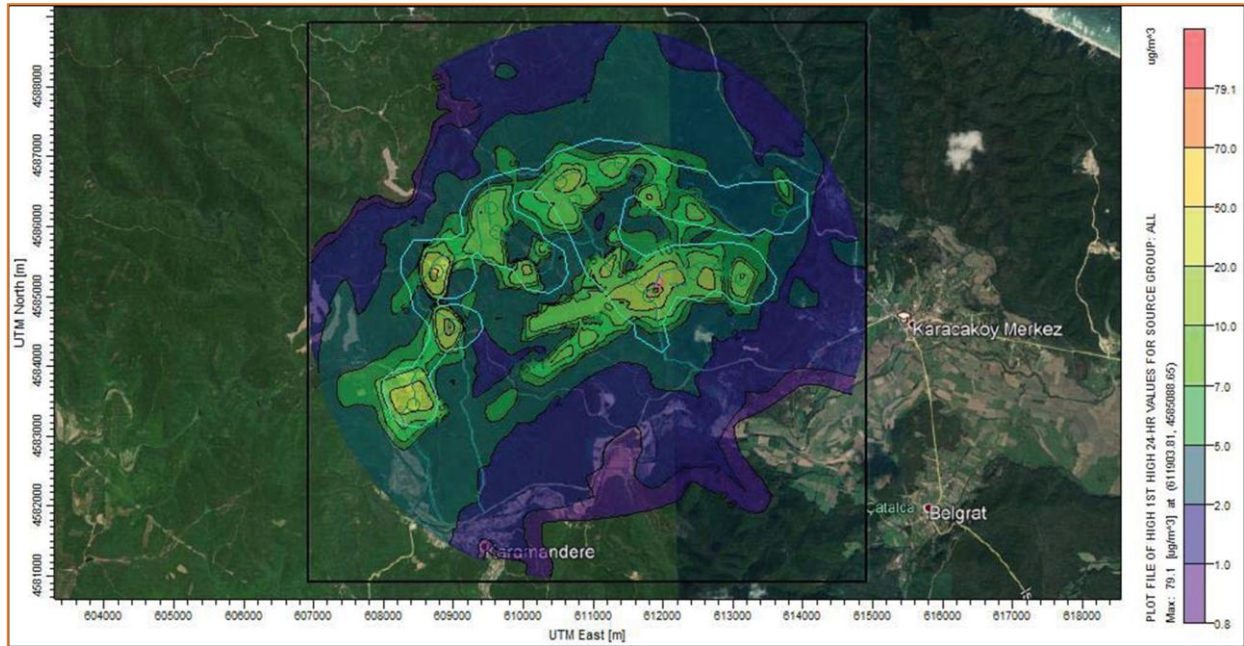


Figure II-1 24-Hour PM Emission Distribution of Dust Emitting Operations During Construction

## II.1 Noise

Noise measurement studies were carried out at 4 different points to determine the current situation for the noise impact assessment of the project. Background noise measurements were made in front of the nearest sensitive structures.

At the stage of activities that will be carried out from the preparation of the land to the opening of the units, there will be noise formation caused by work machines. In addition, there will be noise caused by wind turbine installation activities.

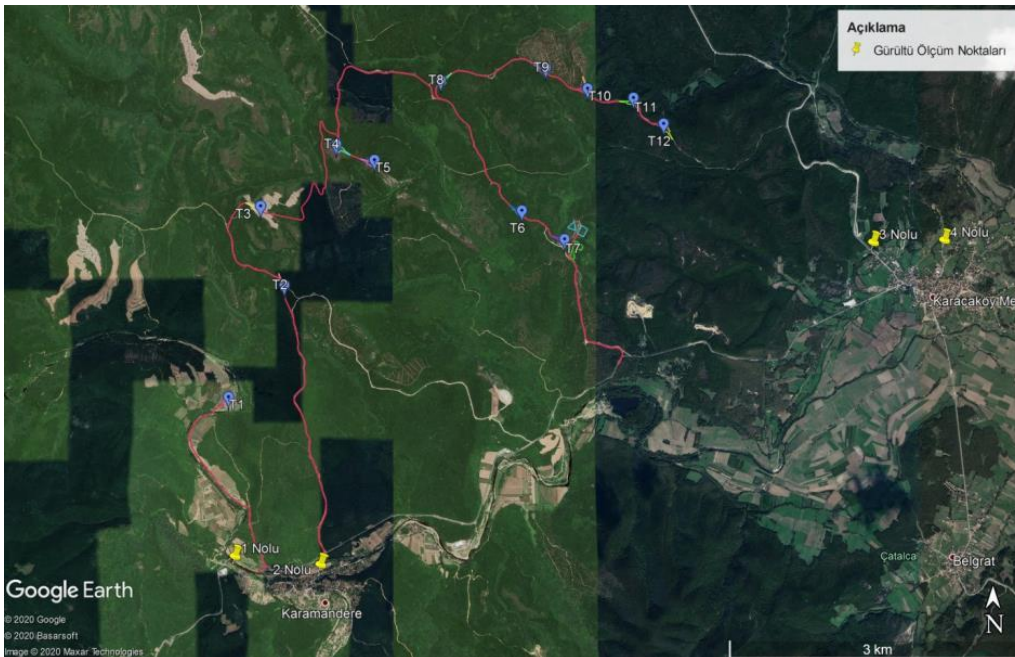


Figure II-2 Noise Measurement Points

Below is a list of construction machines that will be used in the preparation and construction phase of the land.

**Table II-2** Machinery and Equipment Planned to be Used Simultaneously in the Project Site and Engine Power

Source of Noise	Number	Engine Power
Dozer + Excavator	2	250 kW
Truck mixer	4	95 kW
Concrete Pump	1	200 kW
Truck	2	119 kW
Sprinkler	1	110 kW
Crane	1	450 kW
Truck	3	313 kW
Vibrating Roller	1	110 kW

Based on the total net sound pressure levels of each equipment for each distance, the average sound pressure levels that will consist of all noise sources were calculated using formulas adopted in accordance with national legislation. The noise level that will occur due to the construction activities of the turbines falls below 70 dBA at a distance of 100 m. This value remains under project standards. In addition, there are no settlements at a distance of 100 m from the turbine points, the nearest sensitive structure is at a distance of 250 m and 400 m from the turbine area T1, and the nearest settlement is at a distance of 1800 m from the turbine areas.

Operating stage noise will be caused by the operation of the turbines. Noise in wind turbines occurs for two different reasons. The first is the mechanical noise caused by the system, such as the gearbox, fan, gear, and the second is the aerodynamic noise caused by the wind-wing interaction. Aerodynamic noise is in the form of rustling. According to modeling studies, depending on the distance of wind turbine areas to settlements, the noise level that will be felt cumulatively in settlements caused by the operation of each turbine is given below.

**Table II-3** Cumulative Operational Noise Level Modeled in Noise Sensitive Receptors

Scenarios	Sensitive Structure- Karamandere 250 m	Sensitive Structure - Karacaköy 1400 m	Karamandere Centrum 1800 m	Karakaköy Centrum 1900 m
<b>Resulting from a Single Turbine</b>	42,40 dBA	25,00 dBA	22,40 dBA	21,40 dBA
<b>(Calculated by Considering the Distance of the Closest Turbine to the Settlement or Sensitive Building)</b>	42,90 dBA	33,50 dBA	33,40 dBA	31,5 dBA
<b>Cumulative (From All Turbines)</b>	43,00 dBA	37,60 dBA	--	--

As can be seen from **Table II 3**, as a result of cumulative evaluations, the noise levels that are likely to occur in the nearest sensitive structures meet the project standards.

A **Noise Management Plan** specific to the project will be prepared and implemented. An effective complaint mechanism will be established during the construction and operation phase and action will be taken in accordance with the complaints and warnings from the local people. During the operation phase of the project, background noise measurement will be made in the farm house, which is the closest settlement to the project area.

## II.2 Geology, Hydrology and Hydrogeology

In the project area, the basic unit generally consists of a sedimentary unit consisting of siltstone, claystone and sandstones belonging to the Upper Miocene aged Ergene Formation. The units belonging to the Ergene Formation throughout the project area are generally low permeable and do not have aquifer characteristics. Şermat Quartzites and Alluvium units located in a very narrow part of the project area are defined as permeable.

The project site is located within the borders of the Marmara Basin. There is no source discharge point in the project area and its vicinity.

There is no lake, pond or wetland in the close vicinity of the project area. The Power Plant Site is located in the Terkos Dam Drinking Water Basin Long Distance Protection Area, where drinking water is supplied to Istanbul Province, and actions within the basin boundaries must be performed in compliance with "Water Pollution Control Regulation", "Regulation on the Protection of Drinking-Utility Water Basins" and "İSKİ Drinking Water Basins Regulation". A small part of the Power Plant Site is within the Karacaköy Dam lake area, where the planning studies are continuing to be built on the Karasu Stream within the borders of Çatalca District of İstanbul Province in order to meet the long-term water need of İstanbul Province by 14th Regional Directorate of State Hydraulics. Karacaköy Dam Basin has not been declared a drinking water basin yet, and the boundaries of the basin protection areas will be determined in the later stages of the planning studies. The project will not have a negative impact on underground and surface water resources.

### II.3 Waste Management

Water use under the project will be limited to domestic use. Wastewater from use, which will occur in limited quantities during the work, will be directed to a sealed cesspool tank to be built, and this tank will be regularly discharged by the municipality of Çatalca through sewage trucks.

The construction contractor shall provide the necessary facilities in accordance with the requirements of national legislation for the management of the resulting wastewater (package domestic wastewater treatment unit or a sealed cesspool tank, depending on the number of field personnel) during the construction phase.

During the construction and operation phase of the project, there will be domestic solid waste, waste oil, vegetable waste oil, hazardous waste, waste battery and accumulator, tire waste that has completed its life. A **Waste Management Plan** specific to the project will be prepared and all personnel, including contractor / sub-contractor personnel, will be provided to act within the framework of this plan.

### II.4 Land Use

At the design stage of the project, studies were conducted on the selection of the turbine model and location, which would allow less tree cutting. Tree cutting works shall be carried out in accordance with the final permission obtained from the Forest Regional Directorate and tree cutting shall not be carried out in a size that will lead to the habitat division.

### II.5 Biodiversity

Habitat and vegetation formation of the project area and the current biodiversity (biological diversity) elements, including terrestrial plant, bird and bat species and other animals were evaluated in detail. The biodiversity elements of the project will be managed through the implementation of the Biodiversity Action Plan during the construction, operation and closing stages of the project.

The project area is within the borders of the Terkos Basin Key Biodiversity Area (KBA) and is on the "Via Pontica" bird migration route corridor along the western coast of the Black Sea. Via Pontica is the main migration route for raptors in the region.

The project area is in a forested area. The main component of the forest formation is Oak (*Quercus infectoria*). Although Oak is dominant throughout the field, there are open areas and shrubs in some sections within the field boundaries. There are no permanent or temporary stagnant aquatic environments within the boundaries of the project site. In contrast, there are temporary or permanent stream habitats within the boundaries of the project site. These stream beds are relatively small in scale.

In 2019 and 2020, senior flora and fauna experts conducted field studies on plants and animals to determine the terrestrial plant and animal species of the project license area and to define habitat and vegetation characteristics.

As a result of field studies on plants, a total of 224 taxons belonging to 53 families were identified in the area. Among the plants identified from the study area are 3 regional endemic taxons (*Cirsium polycephalum* DC., *Euphorbia amygdaloides* L. var. *robbiae* Turrit and *Crocus pestalozzae* Boiss).



It is also worth noting that these regional endemic plant species are not evaluated on a global scale according to the Red List of Endangered Species of World Association for Protection of Nature and Natural Resources (IUCN).

As a precaution taken in the field, regional endemic species will be collected by a botanist from the areas where they are located and will be removed to be placed in suitable habitats near the turbines that are in operation, to be determined by this botanist. Whether this relocation was successful will then be monitored as part of the project BAP (Biodiversity Action Plan). The project company will protect these relocation sites with appropriate methods (for example, fencing, marking) and will provide biodiversity training to all direct and contracted project employees on their start-up to prevent these displaced species from being stepped on and being harmed.

### Bird Studies

As part of the Ornithological monitoring studies conducted in 2019, a significant number of bird species identified as visible within the boundaries of the project site and in areas close to the site were included in the “European Red List of Endangered Species” (ERL) updated by the IUCN. 45 of the 52 bird species identified in this study were in the category “LC” (Under Lowest Danger), while 3 bird species were in the category “VU” (*Aquila helia* - Imperial Eagle, *Clanga clanga*-Great Forest Eagle, *Streptopelia turtur* - Turtledove), 1 bird species were in the category “NT” (*Anthus pratensis*-Tree Pipit) and 3 bird species were not evaluated.

An action plan was formed for the bird species *Aquila helia* (Imperial Eagle), *Clanga clanga* (Great Forest Eagle), *Streptopelia turtur* (Turtledove) in VU category and *Anthus pratensis* (Tree Pipit) in NT category and it is included in Chapter 10 of BAP.

As part of the Ornithological monitoring studies conducted in 2020, a significant number of bird species identified as visible within the boundaries of the project site and in areas close to the site were included in the “European Red List of Endangered Species” (ERL) updated by the IUCN. 45 of the 51 bird species identified in this study were in the category “LC” (Under Lowest Danger), while 1 bird species were in the category “VU” (*Clanga clanga*-Great Forest Eagle), 1 bird species were in the category “NT” (*Anthus pratensis*-Tree Pipit) and 4 bird species were not evaluated.

An action plan was formed for the bird species *Clanga clanga* (Great Forest Eagle) in VU category and *Anthus pratensis* (Tree Pipit) in NT category and it is included in Chapter 10 of BAP.

### Bat Studies

Within the scope of bat monitoring studies, 3 different sampling points were determined within the boundaries of Hacı Bey WPP project site in order to be able to take samples from different habitat types. Abbreviations such as BTP-1, BTP-2 and BTP-3 were used to identify the Bat Tracking Point at the sample locations. One of these sampling points has been determined to be within the forest area, the other near an open field close to the river bank, and the last one close to a point where there is a wide open field.

A mini Batcorder device was installed at the designated sample points. As is known, this equipment is very successful in terms of acoustic monitoring. The device is capable of performing ultrasonic recording. The equipment in question, which works automatically, is activated if any bat activity is detected. The device is omnidirectional, that is, capable of recording sounds from all directions. Recorded vibrations are in the form of high-quality digital recordings. The width resolution is 500 kHz, 16 bits. The adjustable microphone sensitivity is set at 84 dB. By analyzing audio recordings, the hardware can determine which genre it belongs to with a big hit. The results obtained can then be evaluated together with species records and healthy results can be achieved.

The observations for Hacı Bey WPP project site were carried out on July 24-26, 2019 and June 26-28, 2020. Batcorder devices were set to record from 21:00 in the evening to 06:00 in the morning. Monitoring studies in 2021 will be conducted with sound recordings over 2 nights in 3 locations as migration period (spring and autumn) and reproduction period (summer) according to the criteria defined by Eurobats. BAP will be updated in light of the data to be obtained.

## Impact Mitigation Measures for Birds and Bats

The following mitigation measures will be taken to reduce the potential impacts of the Project on birds and bats:

- The project company will continue its carcass study, along with bird and bat activity monitoring, during the construction phase of the project and in the first two years of operation. Monitoring studies will be continued by the bird and bat expert throughout the loan period.
- Collision risk assessment for migratory and native bird species will be made based on field data collected by the end of 2021. Monitoring studies to be carried out in 2021 will be carried out and evaluated according to the "Breeding Bird Survey", "Vantage Point Survey" and "Collision Risk Assessment" criteria defined by SNH.
- In line with the Before-After Impact Control approach, based on the results of the field data and an updated risk assessment of the post-construction phase, an active turbine management strategy will be implemented to reduce the risks associated with turbines causing injury or death to bird species.
- For the management of plant and animal species that need to be protected, a Biodiversity Action Plan (BAP) has been established that includes the implementation of on-site and off-site measures identified during the ESIA study, and this BAP will be updated as needed based on new field data. The BAP will need to include measures to ensure there is no loss of biodiversity elements and there is gain in the habitat through the implementation of the mitigation hierarchy. As the project progresses, revisions and updates will be made in the BAP, which is a living document, to reflect the additional measures required to protect habitats and species.

## II.6 Landscape and Visual Impacts

Land preparation and construction activities such as topsoil stripping, excavation work, hoarding of excavated materials, construction materials, power plant components and construction waste, presence and operation of construction machinery and equipment, movement of heavy vehicles, establishment of temporary construction facilities will be limited to temporary and geographical scale and will be removed upon completion of the construction phase.

The potential visual impact of the project at the operational stage is primarily due to changes in visual features in the field of view. Changes in visual character will depend on the landscape / vegetation structure of the area in the current view and the level of visual contrast with the interaction of these structures with the project.

The working area of Visual Impact Assessment (VIA) is consisting of circles with a radius of 20 km (in the land area) from the Center Point of the project. Prior to the fieldwork, a Theoretical Visibility Zone study was conducted to determine the potential perspectives of the project. A computer-aided Theoretical Visibility Zone (ZTV) map has been prepared based on GIS software. This has been used to help perspective selection and to demonstrate the potential impact of development in the wider landscape.

The visual impact of the project on 7 different receptors was evaluated using three-dimensional modeling and GIS tools with international validity. Visual impacts were determined by conducting photomontage studies for each receptor point.



The turbines to be installed under the project are not expected to cause significant changes in the current appearance and receptors.

## **II.7 Social Impact Assessment**

In the Social Impact Assessment (SED) of the planned Hacı Bey Wind Power Plant, first the socio-economic characteristics of the households living in the project area and their thoughts about the project and then the possible effects of the project were examined. Mitigation measures have been determined based on these data. A household survey and a village headman survey were conducted to determine the current socio-economic status of the settlements affected by the project. Due to the covid-19 outbreak, household and headman surveys were conducted by telephone. The sample size was determined as 36 with a confidence level of .85 and an error margin of plus or minus 12%, but 28 people could be interviewed.

The settlements affected by the project are the neighborhoods of Karamaköy and Karamandere, and the population of these settlements is 2475 and 671, respectively, and there are approximately 1370 households. In the households interviewed, the 45+ age group was high and about 72% were primary school graduates. 17.9% of households have a person looking for a job and 53.6% have a retired person. The most important source of income in the places remaining within the scope of the project is wages/salaries from permanent work (78.6%), wages/salaries from temporary work (7.1%) and livestock (7.1%). About 40% of households have incomes below 3.000 TL. 60.7% of interviewees wanted to be informed about the project. They want this information about the project to be provided by the headmen, government officials and those who carry out the project. The people interviewed wanted to be informed about the benefits and losses of the project, whether cheap electricity will be provided to them, the social and economic effects of the project, the work to be done related to the project and the expropriation. The lack of a telephone network and unemployment were cited by the participants as the most important problem of the region.

Groups that will be considered disadvantaged in the scope of the interviews are as follows:

- 4 households with a monthly income below 2000 TL
- 2 households with a disabled person
- 2 households receiving aid because of not being able to make a living

In addition to the positive effects of the project such as creating employment and job opportunities, it has negative effects such as noise, traffic, dust and damage to agricultural areas. Meeting the workforce required especially during the construction and operation phase of the project from local people and procuring certain services from the settlements will positively affect these people. Necessary measures will be taken to prevent traffic and agricultural areas from being affected. The meadows / pastures located close to the project area are used for grazing purposes and the necessary precautions will be taken not to affect these people during the construction phase.

No expropriation of private lands / houses and resettlement is required for the project.

## **II.8 Community Health and Safety**

Potential impacts of wind power plants on community health and safety arise from abnormal load transport, blade and ice throwing, aviation and electromagnetic interference, and radiation.

Access to the project area can be provided from the old İstanbul - Kırklareli road. The length of the existing and new transportation routes to be used within the scope of the project was calculated as 19.2 km. As part of the project, it is planned to open about 2.6 km of new forest road and use and/or improve the existing road with a length of 16.6 km. A transport plan will be prepared prior to construction works for large turbine parts, concrete and other equipment required under the project. The project owner will complete the relevant permits and procedures before the transportation works and will complete the road digging / improvement works.

For the operational phase, the shadow flickering impact of the Project has been evaluated using internationally accepted software tools. As a result of the evaluation, no adverse effects are expected on sensitive receptors in terms of shadow flickering during the operation phase of the project.

The safety distance has been calculated (384 m) for the new Vestas V136 turbines for ice throwing risk management. The closest settlement to the project area is the field house in Karacaköy neighborhood and the distance to this house is approximately 250 m.

During the operation phase of the project, an ice monitoring station will be established to represent all the turbines, and an alarm will be given by the SCADA system in case of icing. The project operation manager will appoint an officer in cold weather conditions to ensure that the turbines are inspected visually from a safe distance and, if necessary, turn off the turbine where adverse conditions occur until the unsuitable conditions are over.

An Emergency Preparedness and Response Plan will be implemented to avoid potential occupational and community health and safety risks during the construction phase. The plan will be updated as needed before the start of the operation phase.

There are no facilities such as airport, radar, meteorology station etc. in the region and impact area of the project. The closest airport to the project area is Istanbul 3rd Airport and is located 32 km southeast. The closest meteorological radar to the project site is located at a distance of 6.5 km. As a result of the examination made by the General Directorate of Meteorology, it has been stated that the wind power plant does not pose a problem in terms of the systems of the General Directorate.

## **II.9 Labor Force and Working Conditions**

Approximately 40 people are expected to work during the construction activities of the project and 8 people during the operation phase. Bali Rüzgar Elektrik Üretim Ticaret AŞ will demand that the Contractor company / companies that will provide services for construction works give priority to the local people during employment as much as possible.

Both the project owner and contractor companies will be responsible for equal treatment of employees, child employment, working age, etc., as required by the Labor Code, international conventions and IFC PS 2 at the construction and operation stages.

A construction site will be determined by taking into account the necessary permits and procedures prior to the construction activities of the project. The site in question will have a guest house for workers' accommodation and common living areas such as canteen and kitchen. In addition, if necessary, existing accommodation facilities such as hotels, rental houses will be used in nearby settlements. As the number of staff to work is limited and the construction period is expected to take about 24 months, the impact due to need for housing and accommodation in nearby settlements will be low and temporary.

Activities that may pose risks to occupational health and safety in wind power plants are the construction and excavation works of on-site access roads and turbine foundations, lifting activities with equipment such as cranes and working at height. General and job-specific OHS training and first aid training will be provided to the personnel to be employed within the scope of the project.

## **II.10 Archeology and Cultural Heritage**

At the stage of licensing for Hacı Bey WPP, land survey studies were carried out by the experts of the İstanbul Number I Cultural Heritage Conservation Board, and it was stated that the project license area was within the boundaries of the protected Anastasius Walls buffer zone. However, with the technology changes made within the scope of the project, 12 turbine areas were determined in the last case and a license area was drawn again in this direction.

In the new situation, the project license area is located at a distance of 250 m to the trail of Anastasius Walls and 100 m to the protection area. During the works to be done, the closest construction activity will be 1500 m away from the border of Anastasius walls and 1400 m from the boundary of the protection area, so there will be no adverse effects.



A Chance Finds Plan will be prepared and implemented prior to land preparation and construction activities. Project personnel and contractor personnel will be given training / information on the boundaries and protection of Anastasius walls by competent persons.

## II.11 Cumulative Impact Assessment

There are 9 more WPP projects in the region where Hacı Bey WPP project area is planned and its immediate surroundings (within a 20 km radius), with Pre-License and Generation License (<http://lisans.epdk.org.tr>). These projects are: Istanbul WPP 1.2 km west of Hacı Bey WPP field, Tayakadin WPP at 7.5 km southwest, Ertan WPP at 13 km southwest, Kemberburgaz WPP at 14 km southwest, Mahmut Şevket Paşa WPP at 13.5 km southwest, Şile WPP at 6 km south, Yamaçtepe-2 WPP at 10 km south east, Gazi Osmanpaşa WPP at 12 km south and Aydos WPP at 13.8 km south east.

A technical evaluation report (TER) of the site selected was prepared by EMRA prior to the license and the license was granted because it did not interact with other power plants.

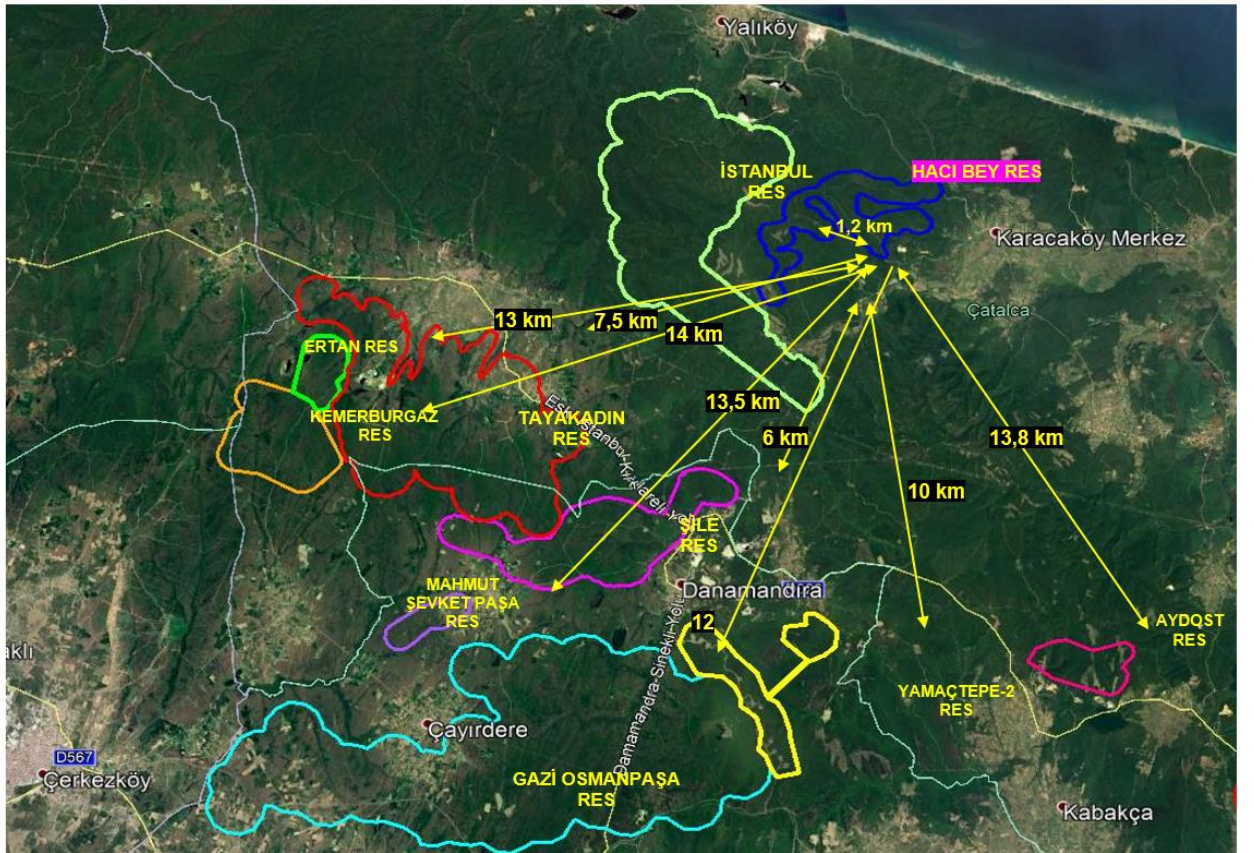


Figure II-3 Satellite Image Showing Other WPP Projects in the Area

### CHAPTER III ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

Bali Rüzgar Elektrik Üretim ve Ticaret AŞ will establish Environmental and Social Management Systems (ESMS) in order to effectively manage the environmental and social impacts of the project from the land preparation and construction phase to the closing phase. During the creation of the ESMS, the following subject / documents will be taken into consideration.

- Compliance with relevant Turkish laws and regulations and EU directives
- IFC PSs
- EBRD PRs
- EIB ESSs
- IFC EHS General Guidelines
- Environmental and Social Action Plan (ESAP) prepared within the scope of the ESIA study

The defined measures to eliminate impacts and risks identified at various stages of the project should be adopted not only by the Project Owner, but also by the Contractor and, if any, Sub-Contractors. The Project Owner will be responsible for the implementation of the issues in the ESAP by all parties.

The project owner will appoint an ESMS Manager who will be responsible for the establishment, implementation and maintenance of the ESMS. The ESMS Manager and his team will work closely with the employees of the project owner and contractors to ensure the most effective implementation of the ESMS.

Bali Rüzgar Elektrik Üretim ve Ticaret A.Ş. will prepare the necessary procedures to establish and maintain an effective internal and external communication mechanism. Efficient communication will be provided through the website of the project owner and mechanisms such as meetings.

The preparation of the following plans within the scope of the Environmental and Social Management System will be useful in preventing environmental and social risks that may arise during the land preparation, construction and operation phase.

- Emergency Preparedness and Response Plan
- Air Quality and Greenhouse Gas Management Plan
- Noise Management Plan
- Dangerous Substances Management Plan
- Waste and Wastewater Management Plan
- Biodiversity Action Plan
- Community Health and Safety Management Plan
- Contractor and Supply Chain Management Plan
- Cultural Heritage Management Plan (including Chance Finds Procedure)
- Human Resources Management Plan
- Livelihood Restructuring Plan (LRP)
- Security Management Plan
- Stakeholder Engagement Plan (including the internal and external Complaints Mechanism as defined in detail in the Project SEP)
- Traffic Management Plan
- Training Plan
- Social Impact Assessment and Stakeholder Communication Procedure
- Social Monitoring and Complaints Mechanism Procedure

An Emergency Preparedness and Response Plan will be prepared to develop measures and response strategies in cases of equipment failure, staff failures and accidents, natural disasters, forest fires, sabotage, etc. that may occur at all stages of the project, and to protect public health and safety.

## CHAPTER IV ENVIRONMENTAL AND SOCIAL ACTION PLAN (ESAP)

An Environmental and Social Action Plan (ESAP) has been prepared, covering the proposed environmental and social measures within the scope of the project's ESIA studies. The project owner will be responsible for implementing the said ESAP to comply with national legislation and IFC standards during the construction, operation and closing phases of the project.

Key actions identified under the ESAP are summarized below:

- Developing, implementing and, if necessary, updating an Environmental and Social Management system by the project owner.
- Preparation / updating of Environmental and Social Management Plans including the following issues during the construction and operation phase of the project
  - Air Quality and Greenhouse Gas Management Plan
  - Noise Management Plan
  - Contractor and Supply Chain Management Plan
  - Emergency Preparedness and Response Plan
  - Traffic Management Plan
  - Occupational Health and Safety Plan
  - Chance Finds Plan
  - Waste and Wastewater Management Plan
  - Turbine Removal Plan
  - Habitat Restoration Plan
  - Biodiversity Action Plan
  - Off-Site Accommodation Management Plan
  - Stakeholder Engagement Plan
  - Human Resources Plan
  - Ice Throwing Management Procedure
- Establishing an organizational structure to implement, monitor and update the environmental and social management system before land preparation and construction works by the project owner, and appoint an environmental and social manager with technical competence.
- Completing the required permit procedures in accordance with the national legislation before the land preparation and construction phase of the project.
- Implementation of Stakeholder Engagement Plan and Complaints Mechanism throughout the project life
- Conducting air quality and noise monitoring studies at sensitive receptors
- Further communication with the sensitive receptor located 250 m from the T1 turbine, informing about the effects of noise and dust emission during land preparation and construction works of the project, monitoring the effectiveness and impact of the measures taken
- Conducting monitoring studies specified within the scope of Biodiversity Action Plan
- Preparing annual progress reports and publishing them on the website of the project owner in order to monitor the environmental and social performance of the project and to identify additional measures (if necessary) to be taken.

## CHAPTER V STAKEHOLDER ENGAGEMENT PLAN

Hacı Bey Wind Power Plant Stakeholder Engagement Plan (SEP) aims to enable the project to be carried out in a transparent and inclusive manner with a participatory approach by determining the project stakeholders and the ways of the project to interact with the stakeholders. The Stakeholder Engagement Plan explains how to communicate with people, institutions and organizations that may be affected by the Project or may be related to the Project at all stages of the project to be implemented. In addition, a complaints mechanism will be established for both stakeholders and project employees under the SEP.

The prepared SEP aims to meet the requirements of the Environmental Impact Assessment Regulation and the Environmental and Social Sustainability Performance Standards of the International Finance Corporation (IFC).

Stakeholders will be provided with all necessary information with the project, including information about the project, project stages and development of the project, non-technical summary, project impacts, measures to be taken to reduce negative impacts, complaints mechanism, contact information of project officers.

### V.1 Project Stakeholders

Within the scope of the SEP, the stakeholders should be determined first. All individuals, institutions and organizations that are directly or indirectly affected by the project internally or externally, who are related to the project and have the quality to influence the project are considered as stakeholders.

In this context, project stakeholders can be specified as follows:

- Affected settlements / local communities / areas close to the project area: Those living in Karacaköy and Karamandere neighborhoods and their headmen
- Public authorities: Local, district-provincial and national government agencies and municipalities
- Non-governmental organizations: Local and national NGOs,
- Business and financial institutions: Entrepreneurs, financial institutional investors, lenders and other investors
- Local businesses
- Employees related to the project: Contractors, subcontractor suppliers, project staff
- Media: National and local newspapers, TV, radio, social media groups, etc.
- Vulnerable / disadvantaged groups in the project area: such as the poor, the disabled, the elderly and female-headed households.
- Community leaders
- Politicians

### V.2 Stakeholder engagement studies done so far

Bali Rüzgar Elektrik Üretim Sanayi ve Ticaret Anonim Şirketi has followed the Environmental Impact Assessment procedure and fulfilled all legal requirements. A Public Participation Meeting was held in the Karacaköy neighborhood on 18 June 2020 and the meeting was announced in two newspapers prior to the meeting. In the Public Participation Meeting, local people and participating organizations were informed about the project and then the views of the local people about the project were received.

The EIA report is available on the internet of the Ministry of Environment and Urbanization (<http://eced.csb.gov.tr/ced/jsp/ek1/29143>) .

Within the scope of the Social Impact Assessment, headmen and local people were interviewed by phone.

### V.3 Studies planned for Stakeholder Engagement

It is of great importance to provide stakeholders with clear, easily accessible and timely information. When planning activities related to stakeholder engagement, the problems and limitations posed by the



COVID-19 outbreak need to be taken into account. Due to COVID-19 conditions, companies may not be able to engage stakeholder engagement under normal circumstances. In this context, based on how COVID-19 affects stakeholder engagement activities in the framework proposed by IFC (2020), the ways in which safe stakeholder engagement activities and information about the project will be shared and how complaints will be received will be determined according to the conditions and the most appropriate method / tools will be selected. In addition to digital channels such as Twitter, Facebook, WhatsApp, the company's website, sms, people who can establish relations with the community such as headmen and imams will be used to maintain relations with the communities affected by the project. When necessary, special communication will be made with people who are illiterate, elderly and disabled who have problems using digital channels.

The methods and tools to be used for information sharing and consultation within the scope of the SEP can be summarized as follows: Information meetings, project website, brochures / flyers, sms, WhatsApp groups, media and social media.

#### **V.4 Complaints Mechanisms**

There is no complaints mechanism established for the project, and with the implementation of the SEP, a complaints mechanism will be created for the project. The main purpose of the complaints mechanism is to ensure that all complaints / comments / concerns from any project stakeholder are considered and resolved in a timely and appropriate manner. In addition, a semi- complaints mechanism will be in place where project staff can submit their complaints, and will include all project staff, including sub-contractors, suppliers.

The complaints mechanism will be open to all community members and stakeholders in the Project Area. The complaints mechanism will basically include receiving the complaint, recording the complaint, examining and responding to the complaint, and closing the complaint. A complaint form will be developed for the complaints mechanism and this form will be available on the website. In addition, the necessary information will be made by leaving these forms to the headmen located in the project area.

All complaints / suggestions / comments related to the project will be accepted and will be answered within a reasonable and specified time (10 working days).

Bali Rüzgar Elektrik Üretim Sanayi ve Ticaret Anonim Şirketi will provide sufficient resources and personnel to fulfill the actions and responsibilities required by the SEP.