# KIYIKOY WIND POWER PLANT CAPACITY EXTENSION PROJECT

## NON-TECHNICAL SUMMARY (NTS)

### ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

OCTOBER 2019

ALENKA ENERJİ

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# 1. Background

Kiyikoy Wind Power Plant ("Kiyikoy WPP" or the "Plant") is located in Vize district of Kirklareli province in the northwestern part of Turkey. ALENKA Enerji Üretim ve Yatırım A.Ş. ("ALENKA" or the "Project Company"), a special purpose vehicle (SPV), was established by AKSA Enerji Üretim A.Ş. for the development of Kiyikoy WPP Project. Kiyikoy WPP, with an installed capacity of 28 MWm/27 MWe (14 turbines, 2 MWm each), is in operation since August 2014.

On 1 December 2017, Borusan EnBW Enerji Yatırımları ve Üretim A.Ş. and Borusan Danışmanlık Ortak Hizmetleri A.Ş. (jointly referred to as "Borusan" or "BEE") acquired the Kiyikoy WPP from its previous owner, AKSA Enerji Üretim A.Ş., and became the sole owner of the Project.

BEE, through the Project Company, considers increasing the total installed capacity of the Project to 100 MWm/99 MWe as part of the Kiyikoy WPP Capacity Extension Project (the "Capacity Extension Project"). Accordingly, the Project Company plans to construct and operate an additional capacity of 72 MWm/72 MWe with the construction and operation of 20[1] new turbines, each having a capacity of 3.6 MWm. Following the construction and commissioning of the Capacity Extension Project, the Kiyikoy WPP will have a total installed capacity of 100 MWm/99 MWe to be provided by a total of 34 turbines (including the existing 14 turbines and the 20 new turbines to be built and operated as part of the Capacity Extension Project).

BEE is considering international and national finance for the implementation of the Project. The European Bank for Reconstruction and Development (the "EBRD" or the "Bank") as the potential lender of the Project, has assigned the Kiyikoy WPP Capacity Extension Project as Category A[2] as it involves further expansion and development of a greenfield WPP located close to a major bird migratory route (via Pontica). As per the requirements of the EBRD, an Environmental and Social Due Diligence (ESDD) process was carried out and finalized by the Bank's advisor in February 2019.

In line with the Environmental and Social (E&S) Policy and related Performance Requirements (2014) of the EBRD, as well as general and sector-specific guidelines of the World Bank Group, GEM Sustainability Services and Consultancy Inc. ("GEM") has been retained in March 2019 for the preparation of a fit-for purpose Environmental and Social Impact Assessment (ESIA) Disclosure Package including the following documents:

- ESIA Report (including the Environmental and Social Management and Monitoring Plan (ESMMP))
- This Non-Technical Summary (NTS)
- Stakeholder Engagement Plan (SEP)
- Livelihood Restoration Plan (LRP)
- Specific E&S Management and Action Plans
- Environmental and Social Action Plan (ESAP)

The national EIA Report will also be disclosed as part of the EBRD public disclosure process.

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[1] The Project Company initially considered 21 turbines, but the technological advancements have allowed the Company to build and operate this additional capacity with 20 turbines, each having a capacity of 3.6 MWm. Following the construction and commissioning of the Capacity Extension Project, the Kiyikoy WPP will have a total installed capacity of 100 MWm/99 MWe to be provided by a total of 34 turbines (including the existing 14 turbines and the 20 new turbines to be built and operated as part of the Capacity Extension Project). As of September 2019, the Company is in the process of selecting the ultimate 20 turbines to be built and operated as part of the Project; as such one of the 21 turbines considered in the initial Capacity Extension Project will be eliminated before the finalisation of the Project design. As the turbine to be eliminated as part of this process has not been selected at the time of writing this report, all the 21 turbines have been considered in the identification, assessment and management of potential impacts as part of the Environmental and Social Impact Assessment (ESIA) study.

[2] The EBRD Environmental and Social (E&S) Policy (May 2014) defines Category A projects as projects that could result in potentially significant adverse future environmental and/or social impacts which cannot readily be identified or assessed and will require the client to carry out a comprehensive Environmental and Social Impact Assessment (ESIA).

## Key Project Milestones

| | |
|---|---|
| 4 Apr 2007 | • Energy Market Regulatory Authority granted the Energy Generation License for the Project (for 49 years). |
| 8 May 2009 | • Kirklareli Provincial Directorate of Environment and Urbanization issued an "EIA not Required Decision" for 28 MWm/27 MWe Kıyıkoy WPP Project with 18 turbines. |
| 2 May 2013 | • MoEU issued an official letter confirming that the "EIA not Required Decision" obtained on 8 May 2009 is valid for the design with 14 turbines and the same installed capacity (28 MWm/27 MWe). |
| 16 May 2013 | • MoEU issued an official letter (Document No: 8131) confirming that the ETL of the Kiyikoy WPP (4.8 km, 154 kV) is out of the scope of the EIA Regulation in force. |
| Aug 2014 | • Start of commercial operation of the existing Kiyikoy WPP (28 MWm/27 MWe with 14 turbines). |
| 14 Sep 2017 | • MoEU issued an "EIA Positive Decision" for the 100 MWm/100MWe Capacity Extension Project. |
| 26 Oct 2017 | • Energy Generation License was amended by EMRA for the Capacity Extension Project. |
| 1 Dec 2017 | • Borusan acquired the Kiyikoy WPP from its previous owner and became the sole owner of the Project Company (Alenka). |
| 10 May 2018 | • EMRA issued the Public Benefit Decision for the Project (Decision No. 7837-14) |
| 25 Jan 2019 | • MoEU issued an official letter (Document No: 10192) confirming that the"EIA Positive Decision" dated 14 September 2017 is valid for the revised coordinates of the turbines and a total capacity of 100.45 MWm/99.45 MWe. |
| 30 Apr 2019 | • Preliminary Forestry Permit has been obtained for all turbines except T15, T22 and T31. |
| 23 May 2019 | • Preliminary Forestry Permit application been done for T15 and T31. |
| 8 Jul 2019 | • Project Company applied to EMRA with the request of accelerated expropriation as part of Project's land acquisition process. |
| 22 Aug 2019 | • Zoning plan approval issued by the authorities for 18 of the new turbines (except T15 and T31). |
| Sep 2019 | • Administrative process for the final forestry permit is ongoing for 18 new turbines. For the remaining two new turbines (T15 and T31), forest preliminary permit process is ongoing and zoning plan approval applications will be done after the finalisation of the preliminary forestry permit. |

The ESIA Disclosure Package has been prepared in line with the following national and international requirements and standards:

- National legislation applicable to the management of environmental and social aspects of the Project,
- International Agreement, Conventions and Protocols to which Turkey is a party,
- EBRD Environmental and Social Policy and Performance Requirements (2014),
- Relevant EU Legislation including EIA Directive 2011/92/EU, EU Habitats Directive 92/43/EEC, EU Birds Directive 2009/147/EC, EU Environmental Noise Directive 2002/49/EC, and EU Waste Framework Directive 2008/98/EC

# 2. Project Description

## 2.1 Project Location and its Surroundings

Kiyikoy WPP Project is located within the administrative borders of Vize district of Kirklareli province. The License Area is situated approximately 65 km (air distance) southeast of the Kirklareli city centre and 25 km northeast of the Vize district centre, at the coast of Black Sea.

Parcels within the License Area are registered in Kiyikoy town and Kislacik village. Kiyikoy town, whose centre is located 2.2 km southeast of the License Area border. Kislacik village centre is located 5.2 km west-northwest. Aksicim, Balkaya and Hamidiye are other villages located within a 10 km radius around the License Area border. The License Area, turbine locations and the surrounding settlements and roads are shown in Figure 2-1.

Access to the Project site is provided through the centre of Saray district located in Tekirdag province. From Saray district centre, the Saray-Kiyikoy road is followed for about 25 km, which diverges to the north in the direction of the existing Kiyikoy WPP. From this point, the stabilised forest road is followed for about 12 km to access the site through the existing main access road of the operational Kiyikoy WPP.

The Pabucdere 1st Degree Natural Protection Site (Sit), located approximately 300 m south-southeast, is the closest legally protected area outside the License Area. The Kasatura Bay Nature Protection Area (4.8 km southeast), Igneada Longoz Forests National Park (8 km north), Camlikoy Nature Park (8 km south) and Istanbul Catalca Wildlife Development Area (9.2 km south) are other legally protected areas in the surroundings of the License Area. The nearest lake to the Project License Area is Saka Lake, which is located at a distance of approximately 11 km.

The License Area falls within the boundaries of Istranca Mountains Key Biodiversity Area (KBA)[3] and located on the “Via Pontica” bird migration corridor along the west coast of the Black Sea. Via Pontica is a major route for raptors in the region. Igneada Forests Important Bird Area (IBA) and Terkos Basin IBA are other internationally recognised areas in the vicinity of the License Area.

There are few buildings/structures located within the Project License Area. The closest building/structure to the turbines is located approximately 200 m north of T15, which is situated on a registered agricultural parcel.

The Turk Stream Project is located at the southern/south-eastern boundary of the Kiyikoy WPP License Area. The construction camp site and some of the facilities of the Turk Stream Project falls within the boundaries of the Kiyikoy WPP License Area. As of September 2019, construction works of the Turk Stream Project are almost completed (95%). There are multiple existing and planned WPP developments in the wider region (see Section 3.13).

[3] There are no migratory souring birds that qualify the Istranca Mountains KBA.

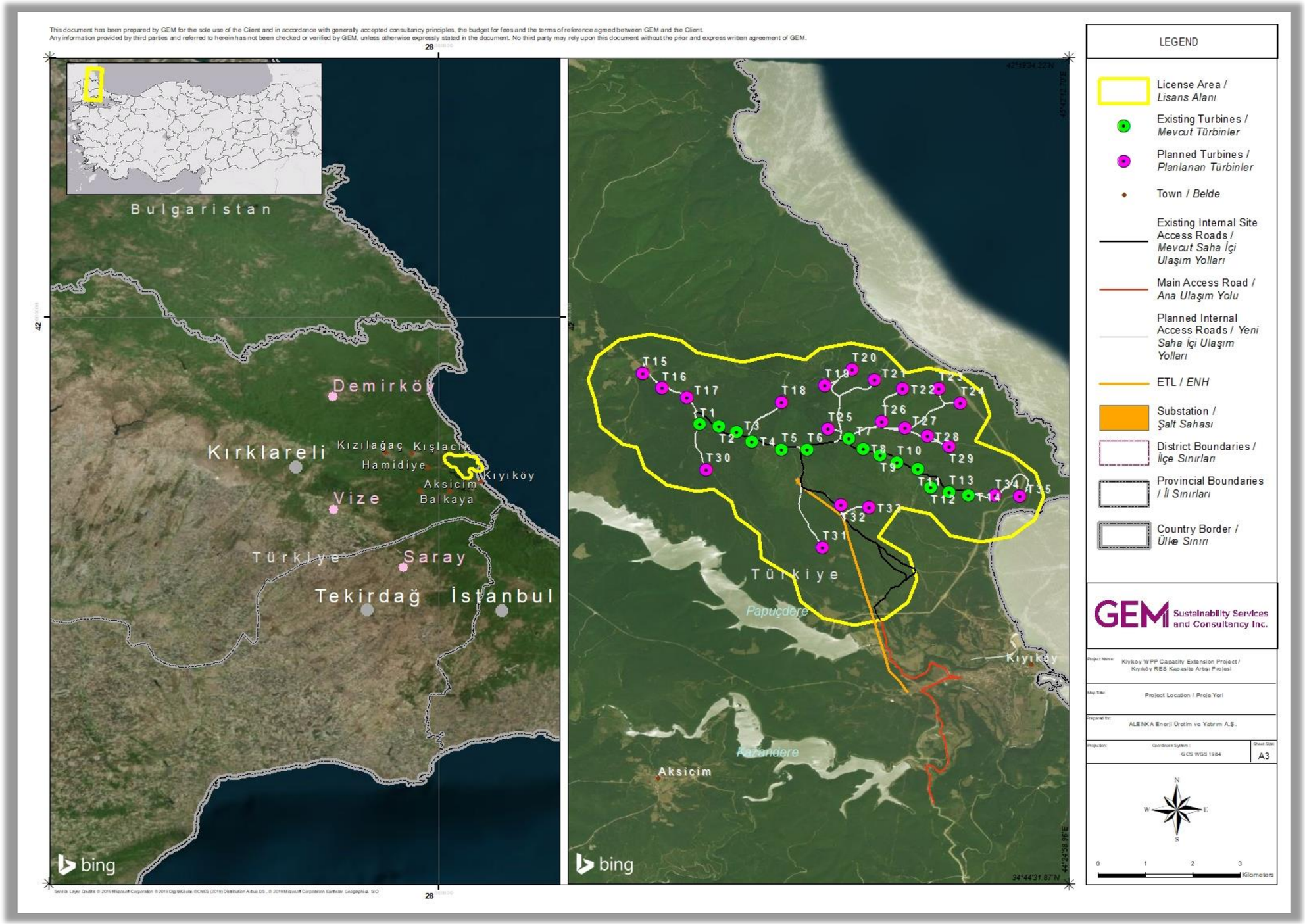
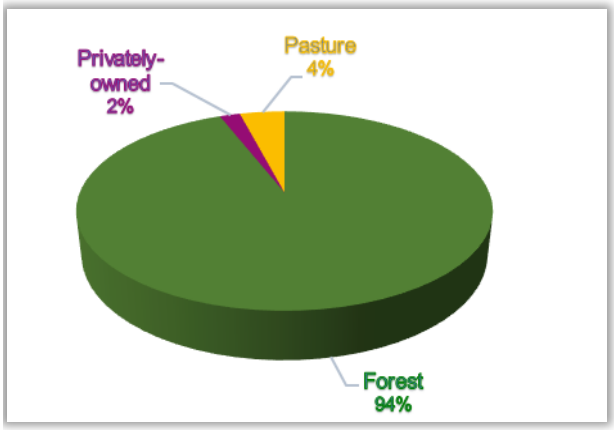



Figure 2-1. Project License Area and the Surrounding

## 2.2 Land Use

The Project License Area covers 2,453.3 ha. The major land use type within the License Area is forestry according to CORINE Land Cover distribution), whilst there are a few patches of parcels registered as agricultural, pasture, raw soil within the License Area.




Land take is required for the construction of the new turbines (20 turbines) and internal site access roads for the Capacity Extension Project. A vast majority of the land to be acquired is composed of state-owned forest land (94%) corresponding to two forest parcels registered in Kiyikoy (Parcel no. 325/1) and Kislacik (Parcel no. 101/246).

A total of three privately-owned parcels will be acquired, two of which are registered in Kiyikoy (Parcel no. 129/27 and Parcel no. 129/31) and located along the main access road of the Project and the other is registered in Kislacik (Parcel no. 101/206) and located at the foundation of Turbine 15 (T15).

## 2.3 Key Project Activities, Main Components and Key Technical Specifications

The existing Kiyikoy WPP has 14 operational turbines, a substation, 154 kV 4.8 km Energy Transmission Line (ETL) and existing main and internal access roads (7.7 km). The ETL is being operated and maintained by the Turkish Electricity Transmission Company (TEIAS). The existing WPP generated 79 GWh electrical energy in 2018.

**Figure 2-2. Existing Kiyikoy WPP (in Operation since August 2014)**

The Capacity Extension Project will utilise the existing main access road, which will be slightly improved, and substation and ETL of the current operational Kiyikoy WPP. The following additional components will be involved in the Capacity Extension Project:

- 20 Vestas V136 wind turbines, each having a capacity of 3.6 MWm
- Internal site access roads of 11.2 km (between the 20 Vestas V136 wind turbines and the substation site)
- Underground collector (cabling) system (between the 20 Vestas V136 wind turbines and the substation site)
- Temporary construction facilities that will be removed upon completion of Capacity Extension construction works

Key Project activities to be conducted in each Project phase are summarized in Table 2-1 (see Section 2.5 for the Schedule of Project Activities).

**Table 2-1. Main Project Activities per Project Phase**

| Project Phase | Main Activities |
|---|---|
| Land preparation and Construction | Designation of the construction site boundaries<br>Site mobilisation<br>Vegetation clearance, tree logging (where necessary) and topsoil stripping and storage<br>Construction of service and access roads including excavation and fill activities<br>Construction of cable trenches and cable laying<br>Transportation of heavy and oversize equipment[4] by means of trailers and other construction materials, resources and goods) (e.g. concrete, transformer oil, fuel, water, etc.)<br>Construction of platforms and conducting soil compression tests<br>Construction of turbine foundations including concrete and steel works<br>Erection of turbines<br>Electrical works<br>Commissioning and energizing<br>Demobilisation<br>Rehabilitation of temporary construction sites |
| Operation | Energy generation by operation of turbines<br>Preventive (routine) and corrective maintenance of the turbines, substation components, access roads, etc.<br>Monitoring of the operations for metering, alarms, etc. |
| Closure | Dismantling of the Project units<br>Rehabilitation of the footprints of the operational Project units (e.g. turbine foundations, access roads, substation site, etc.) in consultation with the governmental authorities and local communities |

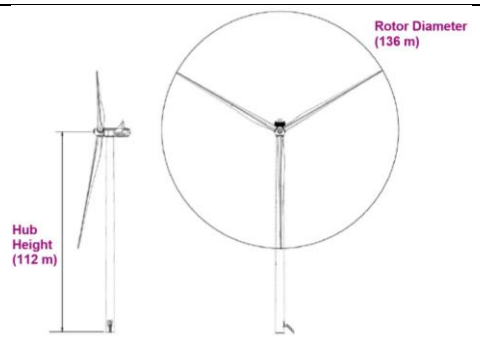
[4] The turbine components (turbine towers, blades, nacelles, etc. are planned to be supplied from foreign countries through the port in Tekirdag.

## Key Technical Specifications

| Information | Existing Project (in operation) | Planned Capacity Extension Project |
|---|---|---|
| Installed capacity | 28 MWm / 27 MWe | 72 MWm / 72 MWe |
| Number of turbines | 14 | 20[5] |
| Capacity of each turbine | 2.0 MWm | 3.6 MWm |
| Turbine type | Gamesa G90 (2 turbines)<br>Gamesa G97 (12 turbines) | Vestas V136 |
| Hub height | 78 m (2 G90 turbines)<br>78 m (12 G97 turbines) | 112 m |
| Rotor Diameter | 90 m (G90)<br>97 m (G97) | 136 m |
| Annual average electricity generation | 79 GWh (in 2018) | 200.6 GWh |
| Energy Transmission Line (ETL) | 154 kV, 4.8 m long between the Project substation and Kiyikoy Transformer Station (being operated and maintained by Turkish Electricity Transmission Company – TEIAS) | No new ETL is required, existing ETL will be used |
| Substation | Existing | No new substation is required, existing substation will be refurbished and extended by one feeder. |
| Under Cabling System | Between 14 Gamesa wind turbines and the substation site | To be constructed between 20 Vestas V136 wind turbines and the substation site |
| Access Roads | Main site access road and internal site access roads of 7.7 km (between the 14 Gamesa wind turbines and the substation site) | Internal site access roads of 11.2 km to be constructed (between the 20 Vestas V136 wind turbines and the substation site) |

Specifications for the Vestas V136, the turbine model selected for the Capacity Extension Project, are provided below:

| Data | Specification |
|---|---|
| Model | Vestas V136 |
| Capacity | 3.6 MWm |
| Swept Area | 14,527.00 $m^2$ |
| Hub height | 112.00 m |
| Rotor diameter | 136.00 m |
| Blade length | 66.66 m |
| Cut-in ($V_{in}$) | 3.00 m/s |
| Cut-out ($V_{out}$) (10 min exponential average) | 22.50 m/s |




[5] The Project Company initially considered 21 turbines, but the technological advancements have allowed the Company to build and operate this additional capacity with 20 turbines, each having a capacity of 3.6 MWm.

## 2.4 Workforce Requirements

The current operations team of the existing Kiyikoy WPP consists of 16 personnel in total, including staff from Borusan Headquarters (HQs), Project Company (Alenka) and the contractors for private security and services. 12 of the operations personnel permanently works at the site (one of the senior technicians temporarily works at the site). All the contractor personnel and 2 of the operation technicians working at the Project Company are from the local (in total 8 local personnel are from Kiyikoy town).

It is anticipated that there will be 100 personnel working on site at the peak period of construction activities, of which 35% is anticipated to be unskilled. Contractors will be contractually required to maximise use of local workforce, especially by utilising the experienced and qualified workforce available in Kiyikoy.

There will be no on-site accommodation of the construction workforce. Local workers from Kiyikoy and other nearby settlements will lodge in their local houses. Non-local workers are anticipated to use mainly the accommodation opportunities including hotels and rental houses in the nearby district centres, including Vize, Saray and Cerkezkoy.

Temporary construction offices, stockyards, facilities will be established within the vacant area present at the existing substation site. On site facilities such as sanitary facilities and medical/first aid facilities will ensure compliance with the Project Standards.

The existing operation teams will continue operating the Kiyikoy WPP by strengthening the capacity of the Environmental and Social Management System (ESMS) team after the Capacity Extension Project units are commissioned.

## 2.5 Schedule of Project Activities

The schedule of construction and commissioning activities are planned as summarised in Figure 2-3. The Capacity Extension Project will be in full commercial operation in Q4 2020.

| No. | Key Activities in Each Project Phase | Year 1 | | | | Year 2 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **1** | **Pre-construction Phase** | | | | | | | | |
| 1.1 | Soil Investigation Studies | | | | | | | | |
| 1.2 | Civil Balance of Plant (Foundation Design) | | | | | | | | |
| 1.3 | Delivery of WPP Equipment (Turbine Towers, Nacelles, Hubs, Blades) to the Site | | | | | | | | |
| **2** | **Construction Phase** | | | | | | | | |
| 2.1 | Construction of Access Roads (Excavation, Subbase and Final Base) | | | | | | | | |
| 2.2 | Construction of Service Roads | | | | | | | | |
| 2.3 | Construction of Turbine Foundations | | | | | | | | |
| 2.4 | Electrical Works at the Existing and New Control Building and the Switchyard | | | | | | | | |
| 2.5 | Electrical Test and Commissioning at the Control Building and Switchyard | | | | | | | | |
| 2.6 | Collector System Construction and Cabling Works | | | | | | | | |
| 2.7 | Installation of Turbine Towers, Nacelles, Hubs and Blades and Other Systems | | | | | | | | |
| **3** | **Testing and Commissioning** | | | | | | | | |
| 3.1 | WPP Trial Tests and Ministry Acceptance | | | | | | | | |
| 3.2 | Full Commercial Operation | | | | | | | | |
| 3.3 | Completion of Punch List Items and Submission of As-Built Documentation | | | | | | | | |

**Figure 2-3. Schedule of Project Activities**

# 3. Assessment and Management of Potential Environmental and Social Impacts

The methodology for the assessment of potential environmental and social impacts of Kiyikoy WPP Project is based on relevant international guidance documents on environmental and social impact assessment. Significance of impacts have been determined based on the sensitivity of the receptor/resource and the overall magnitude of the Project's impact on that specific receptor/resource. The magnitude of the impact has been determined using quantitative or, where this is not practicable, qualitative methods based mainly on professional judgement by taking the geographical extent, magnitude, reversibility, duration and frequency of the impact into account. Beneficial and adverse, direct and indirect impacts have been considered.

Accordingly, the ESIA assessed the potential impacts of the Project[6] on the following E&S components, whilst a Cumulative Impact Assessment (CIA) study has also been conducted:

| Physical and Biological | Social |
|---|---|
| • Land Use<br>• Noise<br>• Air Quality and Greenhouse Gas (GHG) Emissions<br>• Water and Wastewater<br>• Waste<br>• Biodiversity (incl. flora and fauna, avifauna and bats)<br>• Visual | • Socio-economic Environment<br>• Labour and Working Conditions<br>• Health and SAfety (inc. Occupational and Community Health and Safety)<br>• Cultural Heritage |

The ESIA process and the approach to the assessment of environmental and social impacts followed for the Project is illustrated in Figure 3-1. The Project is currently at the disclosure phase, shown in the green box.

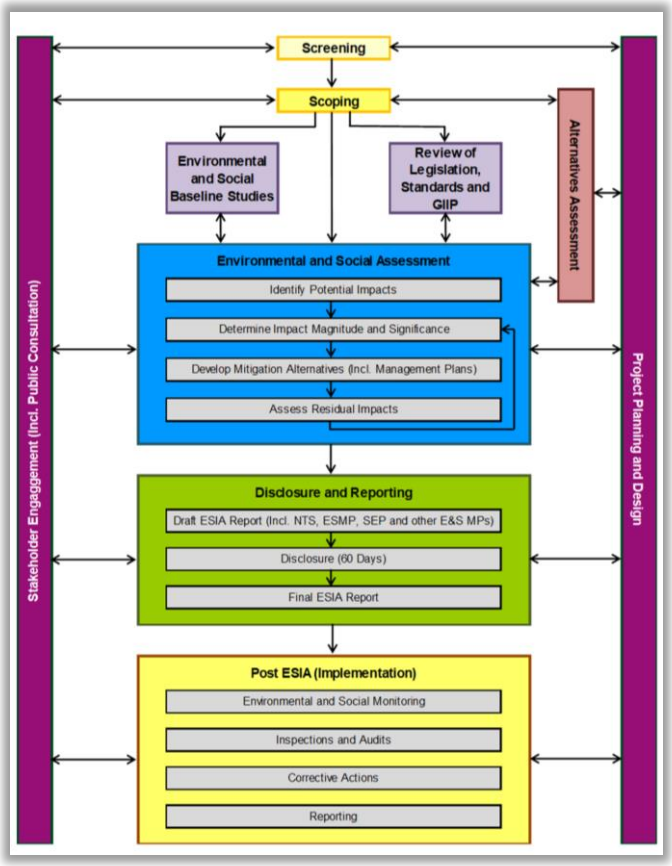



**Figure 3-1. ESIA Process**

[6] The Capacity Extension Project will be implemented with 20 turbines. However, the ESIA Report has assessed impacts for the layout with 21 turbines to represent the worst case conditions, as the Company was in the process of selecting the ultimate 20 turbines at the time of the baseline and impact assessment studies.

## 3.1 Land Use and Soils

The lands required for the construction and operation of the existing Kiyikoy WPP had already been acquired and the land use characteristics have already changed at the footprints of the existing Project units.The Capacity Extension Project will further change the land use characteristics at the footprint of the Capacity Extension Project units due to the construction of 20 turbines and new site access roads. The area of the existing Kiyikoy WPP Project units have affected 13.4 ha of land, while the area to be affected by the new Capacity Extension units (turbines and access roads) will be approximately 25.9 ha. A vast majority of the affected area by the Project correspond to forest lands, while there are very limited agricultural and pasture lands affected at the footprint of the Project units.

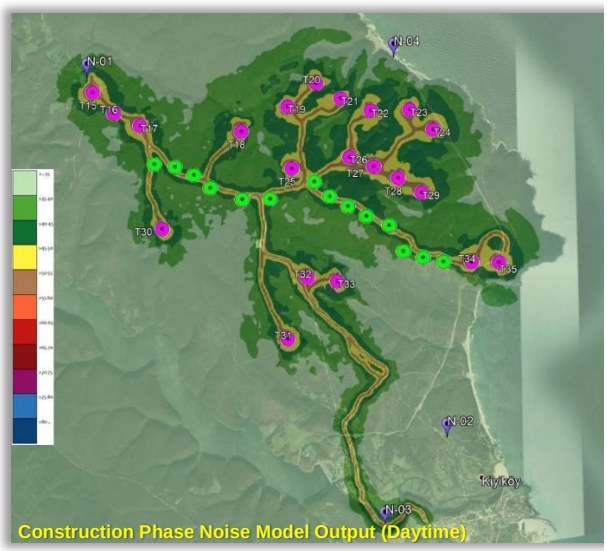
The Capacity Extension Project will primarily use the current main access road, substation and ETL of the existing Kiyikoy WPP. This avoids any additional impact that would be caused by construction of related units. The area to be affected at each turbine platform will be approximately 6 da, which will include the footprints of the turbine foundation (approximately 25 m diameter), steel turbine tower base (approximately 5 m diameter) tower stockyard, blade stockyard, crane pad site, and the related part of the access road.

The soils at the limited agricultural area to be affected by the Project are composed of Class VII soils, which are not suitable for agricultural activities. Topsoil will be stripped from the footprint areas of the Project units during the land preparation phase, temporarily stored at designated topsoil areas and reused in the rehabilitation activities to be conducted following the completion of the construction activities. Subject to Forest Authorities' approval, if there is an excess of topsoil, farmers in Kiyikoy and Kislacik will be consulted to identify their potential needs for topsoil.

## 3.2 Noise

To establish the baseline for the assessment of noise impact of the Project, background environmental noise levels were measured at four locations in April 2019. The following three receptors have been qualified as noise sensitive receptors (NSRs):

- N-01: Residential building located 200 m north of T15.
- N-02: Residential building located at the closest point of Kiyikoy town to License Area borer (located 2.6 km south of T34).
- N-03: Residential building located on the main access road of the Project.



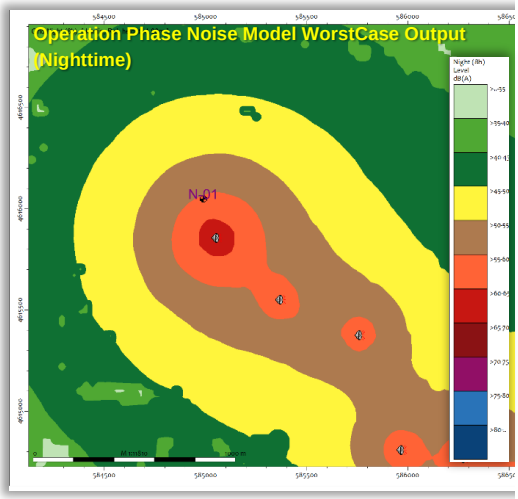
Construction Phase Noise Model Output (Daytime)

The construction of the new internal site access roads and turbine foundations and platforms will result in generation of noise during the temporary period of construction activities due to operation of relevant construction machinery and equipment. The land preparation and construction activities will be completed in 11 months. Activities at each turbine platform site are planned to be completed in 2 months, while activities at different sites will progress in parallel to each other.

The construction and operation phase noise impacts at the selected NSRs have been modelled by using an internationally accepted software (IMMI v2011-1 and v2016). The construction phase modelling results showed that the cumulative construction noise levels are anticipated to be below the regulatory limits as well as Project Standard.

The operation phase noise will be sourced from the operation of turbines. The noise from the existing operational turbines is included within the baseline noise measurements.

The operation phase noise impact at the selected NSRs has been modelled by using an internationally accepted software (IMMI v2011-1 and v2016). The modelling results showed that the cumulative construction noise levels are anticipated to be below the regulatory limits as well as Project Standard. Cumulative operational noise levels have been modelled at the NSRs for different standard and worst-case scenarios considering different operation modes of the turbines. According to the results of operation phase monitoring, regulatory limit values for day, evening and night, are met for the standard conditions at all receptor points. The modeling results show that only nighttime regulatory limits might be slightly (maximum 0.6 dBA) exceeded at N-01, the receptor located 200 m north of T15, in the worst-case scenario. The modeling results imply that the nighttime limits of the international standards would be exceeded at N-01 for the standard and worst-case scenarios.




The real case noise values at the receptors might be lower than the values predicted by the model because of the effect of vegetation, ground absorbance and topography. For the identification of exceedance of or verification of compliance with the Project standards for noise the Project Company will retain accredited laboratories to conduct quarterly noise monitoring during the construction phase and the first year of the operation phase.

The Project Company will further engage with the vulnerable PAP living in the north of T15 during the ESIA public disclosure period and inform the PAP on the potential operational noise impacts of the Project based on the findings of the ESIA and the proposed mitigation measures including the option for relocation during the construction and operation. Based on the vulnerable PAP's willingness or unwillingness to relocate during the ESIA public disclosure period, the management measures will be taken. If the PAP is willing to relocated, a Resettlement Action Plan (RAP) will be developed and implemented in line with EBRD PR5. If the PAP is unwilling to relocate, periodical noise monitoring and management (e.g. provision of proper insulation for the relevant elements of the building, equipping blades of T15 with a technology called serrated trailing edges to reduce maximum sound level at this turbine) will be undertaken as per the Project ESIA and ESAP and it will be ensured that the noise levels comply with the national and international standards.

Project-specific Stakeholder Engagement Plan, including the Public Grievance Mechanism, will be implemented throughout the Project to address any noise-related grievance and plan/take corrective actions, where necessary. The Project Company will continue engagement with the vulnerable PAP through face to face meetings to be undertaken monthly in the first year, quarterly in the second and third year and semi-annually after the third year of operation until the end of financing period.

## 3.3 Air Quality and GHG Emissions

The Project related air emissions will take place during the construction phase and will mainly include dust emissions (PM10, PM2.5) due to earthworks, construction of internal site access roads, turbine platforms and other auxiliary Project facilities. The exhaust emissions from construction equipment and vehicles will be limited due to the nature of Project activities.

Installation and operation of grid-connected wind power plant facilities generate zero-emission electricity from wind energy and reduce combustion greenhouse gas (GHG) emissions from grid-connected power plants. Assuming that the electricity generation from the Capacity Extension Project would have come from an alternative type of source, it has been calculated based on the grid electricity emission factor for Turkey that the Capacity Extension Project will displace 99,700 tCO2e on an annual basis. GHG emissions will be sourced from the on-site construction works due to road transport and non-road mobile sources and machinery and the transportation of turbines and their components to the Project site.

Baseline air quality sampling and measurement for dust emissions (PM10 and PM2.5) was conducted by an accredited laboratory at five selected locations Four of these locations qualified as sensitive receptors as listed below, while the last point was an unoccupied/unused coastline where there are no receptors:

- A-01: Residential building located 200 m north of T15 (PM10: 14 µg/m$^3$; PM2.5: 10 µg/m$^3$)

- A-02: Residential building located at the closest point of Kiyikoy town to License Area border located 2.6 km south of T34 (PM10: 25 µg/m$^3$; PM2.5: 17 µg/m$^3$)
- A-03: Residential building located on the main access road of the Project in the south of TurkStream Project (PM10: 38 µg/m$^3$; PM2.5: 27 µg/m$^{3;}$ the baseline PM 2.5 concentration is already exceeding the regulatory limits and international standards due to ongoing activities in the region that are not related to the Project)
- A-05: Residential building located at the junction point of Kiyikoy town road and Project main access road (PM10: 56 µg/m$^3$; PM2.5: 40 µg/m$^3$; the baseline concentrations of PM10 and PM 2.5 are already exceeding the regulatory limits and international standards due to ongoing activities that are not related to the Project)

An air quality modelling study was carried out for the construction phase by using an internationally accepted software (AERMOD View – Gaussian Plume Air Dispersion). According to the air quality modelling results, Project impact on/contribution to background PM10 and PM2.5 levels are very minor (minimum 0.65 µg/m$^3$ and maximum 3.29 µg/m$^3$ for PM10 for 24 hours period). Project-specific Air Quality and GHG Management Plan will be implemented during the construction phase. Air quality (PM10 and PM2.5) monitoring will be conducted at receptors A-01, A-02 and A-03 at the peak period of construction works to verify compliance with Project standards. Project-specific Stakeholder Engagement Plan will be implemented to address any air quality-related grievance and plan/take corrective actions, where necessary.

## 3.4 Water and Wastewater

The Project License Area is located within Marmara River Catchment. Pabuc River and Kazan River to the south of the License Area are major surface water resources in the vicinity of the Project. No perennial stream is located within the License Area.

The water use at the existing operational Kiyikoy WPP is limited to domestic purposes. The current plant supplies water from Kiyikoy town by means of water tankers and stores the supplied water at the water tank (having a capacity of 5 tons) located at the substation site. Bottled water is used to meet the drinking water requirements of the existing personnel. Sanitary wastewater generated in limited amounts as a result of site activities of the existing workforce is managed at the current non-leaking septic tank present at site, which is regularly emptied by the vacuum trucks of the Kiyikoy Municipality.

The amount of water to be required and thus wastewater generated will temporarily increase during the construction phase of the Project and reduce to current levels with the demobilisation of construction workforce. Water will be required mainly for the domestic (drinking and utility) water consumption by the Project personnel and dust suppression during earthworks and construction activities. During the construction phase of the Capacity Extension Project, water will be supplied from Kiyikoy town and as bottled water. Groundwater is not planned to be used.

During the construction phase, the construction contractor will provide the necessary facilities (package domestic wastewater treatment unit or a non-leaking septic tank depending on the number of site personnel) for the sound management of sanitary wastewater. For the operation phase, a new non-leaking septic tank will be provided at the new control building for the management of the sanitary wastewater to be produced by the operation personnel.

The construction activities and the on-going operations will involve limited use of hazardous substances. Secondary containment and drip trays will be provided for the storage of liquid substances, trainings on emergency preparedness and response will be provided to all Project personnel, spill kits and spill/leak control equipment will be kept on site to avoid potential spills/leakages and associated impacts on the water resources. The operation activities do not involve use of process water or generation of process wastewater.

## 3.5 Waste

The Kiyikoy WPP is in operation since August 2014. Thus, the ongoing operations generate different types of hazardous (e.g. waste oil, waste filters, anti-freeze liquids, waste paints etc.) and non-hazardous (e.g. municipal, packaging, etc.) wastes in limited amounts. The construction activities to be conducted for the Capacity Extension Project will result in additional amounts and types of wastes (including municipal solid wastes, packaging wastes, excavated materials and construction wastes such as scrap steel, timber, etc. and hazardous and specials wastes such as waste oils, waste vegetable oils, end-of-life tires, waste batteries and accumulators, waste electric and electronic equipment, and medical waste) for a temporary period due to the involvement of construction workforce. Excavated materials that will be produced in relatively higher amounts are planned to be reused on site as fill material

for road construction works (as subbase and foundation material) and at turbine platforms or for landscaping purposes. Thus, no off-site disposal of excavated materials at landfills is foreseen.

Following the completion of construction phase and commissioning of the Capacity Extension units, the existing operation teams will continue operating the Kiyikoy WPP, thus the types and amounts of the wastes to be generated is anticipated to comparable to the current levels. Closure activities would result in waste plant equipment in addition to the types of wastes similar to the construction phase.

Management of wastes to be generated as a result of Project activities will follow the mitigation hierarchy to ensure that the hazardous and non-hazardous waste materials are avoided or minimised where avoidance is not possible. Unavoidable but minimised wastes will be stored on-site at a temporary waste storage area having a non-leaking ground, a roof and separate compartment labelled with waste codes according to the national Waste Management Regulation. The wastes stored temporarily on-site will be reused, recycled or recovered wherever possible and disposal will be the last resort in the Project's waste management approach. The Project will comply with the requirements of the national waste management legislation as well as international standards including EBRD PR3 and applicable GIPs.

BEE has a corporate Waste Control Procedure (published in April 2016) defining the framework for the management of hazardous and non-hazardous wastes at the power plants owned and operated by BEE. The existing Kiyikoy WPP also has an Industrial Waste Management Plan prepared as per the requirements of the national legislation.

Based on the existing corporate Waste Control Procedure and the Industrial Waste Management Plan prepared in line with the national legislation, a Project-specific Waste Management Plan has been developed as part of the ESIA process. The Project Company will require the construction contractors to implement the Project-specific Waste Management Plan and provide temporary Waste Storage Areas meeting the requirements of the corporate Waste Control Procedure, national waste management legislation as well as EBRD PR3 and applicable Good Industry Practices (GIPs). In accordance with its corporate Waste Management Procedure, BEE plans to improve the existing Waste Storage Area (e.g. provision of proper drainage, labelling) to ensure that the relevant requirements of the international standards are met in the Project.

## 3.6 Biodiversity Features

The baseline biodiversity features of the Project Area including habitat and vegetation composition, terrestrial flora, bird and bat species and other fauna elements have been thoroughly assessed. The baseline survey findings have been used to identify priority biodiversity features[7] and critical habitat[8] as per EBRD PR6. The summary of survey findings is given below, and the detailed assessment is provided in the ESIA Report. Biodiversity features of the Project will be managed through the implementation of Biodiversity Action Plan throughout construction, operation and closure phases of the Project.

The License Area falls within the boundaries of Istranca Mountains Key Biodiversity Area (KBA) and located on the "Via Pontica" bird migration corridor along the west coast of the Black Sea. Via Pontica is a major route for raptors in the region. This said, there are no migratory souring birds that qualify the Istranca Mountains KBA.

The majority of the Project License Area is covered with broad-leaved forests. The License Area is defined by the following EUNIS habitats:

- EUNIS Habitat G1.A (Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland): These woodlands are widespread in Marmara and Black Sea Regions of Turkey.
- EUNIS Habitat E2.1 (Permanent mesotrophic pastures and aftermath-grazed meadows): Pastures are present at limited scale within the Project License Area. They develop in forest openings and are feeding areas of the livestock.

[7] The EBRD E&S Policy (May 2014) defines priority biodiversity features as a subset of biodiversity that is particularly irreplaceable or vulnerable, but at a lower priority level than critical habitats.
[8] The EBRD E&S Policy (May 2014) defines the most sensitive biodiversity features as critical habitat, which comprise one of the following: (i) highly threatened or unique ecosystems; (ii) habitats of significant importance to endangered or critically endangered species; (iii) habitats of significant importance to endemic or geographically restricted species; (iv) habitats supporting globally significant migratory or congregatory species; (iv) areas associated with key evolutionary processes; or (v) ecological functions that are vital to maintaining the viability of biodiversity features described in this paragraph.

Flora and fauna field surveys have been conducted between April 2019 and August 2019 by senior flora and fauna experts to identify the terrestrial flora and fauna species and define the habitat and vegetation characteristics of the Project License Area.

As a result of the flora field surveys, through direct observation, 275 flora species have been identified falling under 59 different families. Amongst these, the following species have been identified as species of conservation importance during the field surveys:

- Four (4) regional endemic species: *Centaurea hermannii, Cirsium baytopae, Euphorbia amygdaloides var. robbiae, Crocus olivieri subsp. istanbulensis*
- Two (2) not endemic but rare species: *Ferulago confusa, Symphytum tuberosum subsp. nodosum*

It should be noted, the identified regional endemic flora species do not have global evaluations as per the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. In order to avoid loss of the species of conservations importance during the land preparation and construction phase, the seeds were collected by academicians in August 2019 and the collected samples were sent to the Turkey (Ankara) Gene Bank as an ex-situ measure.

As an in-situ measure, in October-November 2019, the *Centaurea hermannii*[9] *(regional endemic)* species will be further collected by an expert botanist at areas where they are identified (by the expert botanist who conducted the baseline field surveys and assessments and reported in the ESIA) to be spread and to be directly affected by Project activities (around T28, T29, T32 and T33) and be translocated to suitable habitats near the operating turbines to be identified by the expert botanist. The success of the translocation will further be monitored in May-June 2020 as part of the Project BAP. The Project Company will protect the translocation sites with adequate methods (e.g. fencing, marking) and provide biodiversity trainings to all direct and contracted Project personnel at the beginning of their employment in order to avoid trampling and damaging the translocated species.

### Bird Studies

A comprehensive ornithology study in line with international standards was designed and carried out including spring (breeding) and autumn (post-breeding) migration periods. Vantage Point (VP) (on high ground) Methodology of Scottish Natural Heritage is used both for migratory and breeding/resident species. The VP methodology includes observations at a fixed location from where the whole Project Area can be seen and all the birds flying through the rotors can be detected. For each season a minimum of 36 hours of observations are required. For this Project, a total of 72 hours of survey is planned for each season.

The spring avifauna survey has focused mainly on migratory soaring birds and methodology of this study included stationary bird counts at 5 VPs for migrant and breeding migratory soaring birds. Spring 2019 surveys were carried out for 39 days in total and for each VP 72 hours of observation was performed.

Collision risk analysis was performed for Spring 2019 survey results by using Scottish Natural Heritage Guidance Note on “Windfarms and Birds: Calculating a Theoretical Collision Risk Assuming No Avoiding Action”.

The Spring 2019 results revealed high collision risk for *Buteo buteo* (Common Buzzard), *Ciconia Ciconia* (White Stork) and *Pernis apivorus* (European Honey-Buzzard) all of which are categorized as “Least Concern” by the International Union for Conservation of Nature (IUCN). Autumn 2019 surveys are ongoing as of September 2019.

### Bat Studies

The bat activity levels at the Project Area were studied based on acoustic surveys covering spring, summer and autumn seasons. In each survey season, two full nights of recording is conducted. The spring survey was carried out between 14 – 17 May 2019 and the summer survey was carried out between 2 – 6 July 2019. During each night of survey, one transect and three static acoustic surveys were conducted. Static surveys started 30 minutes before sunset and ended 30 minutes after sunrise. Each static detector recorded up to 12 hours on each survey night. For static acoustic surveys, six survey/sampling points (SP) have been selected.

[9] *As identified by senior expert botanist, Centaurea hermannii, being both endangered and spread only in Marmara Region makes it a potential critical habitat trigger biodiversity feature.*

Four full spectrum bat detectors (Batlogger M, Elekon) with omni-directional microphones (FG Black, Elekon) were used during the surveys. The detectors were triggered by bat calls using the advance crest (CrestAdv) methodology. Recordings were made at 312,500 Hz sample rate and each of them logged time and temperature. In static acoustic surveys, the microphones were located at approximately 1.5 m above the ground. In transect acoustic surveys, recordings were also geo-tagged by using the built-in GPS of the detectors.

Bat recordings were analysed using BatSound v3.31 and BatExplorer v2.1.4 and species identifications were done by following the methodology described in Barataud (2015) including the parameters in Dietz and Kiefer (2014). As the “call parameters” of some species overlap, in such cases definitive species identification is difficult and thus their identification is reported as “possible”. Feeding buzzes and social calls were also noted.

In Spring 2019, a total of 2,306 bat passes were identified, representing a minimum of 14 bat species. Pipistrellus pipistrellus (Common Pipistrelle) which is categorized as Least Concern by the IUCN was the most frequently recorded species representing more than 60% of the passes.

In Summer 2019, a total of 1,097 bat passes were identified, representing a minimum of 13 bat species. Three new species – Rhinolophus ferrumequinum, Barbastella barbastellus and Miniopterus schreibersii – are added to the observed species list. Pipistrellus pipistrellus was again the most frequently recorded species representing more than 60% of the passes.

### Bird and Bat Mortality Study for the Existing WPP

Bird and bat mortality study was carried out for the existing Kiyikoy WPP during March-May 2019 period for 12 consecutive weeks and weekly carcass count was conducted at the Project Area. Two guidelines extensively used in Europe for carcass studies were utilized in order to design a methodological framework while assessing potential impacts of wind turbines on birds and bats, namely, EUROBATS (Publication Series No. 6) Guidelines for Consideration of Bats in Wind Farm Projects Revision 2014 (Rodrigues et al., 2015) and Guideline for Assessing the Impact of Wind Farms on Birds and Bats (Atienza et al., 2014).

The mortality monitoring consists of three steps: carcass searches, trials to obtain correcting factors for the biased estimates, and estimation of true mortality rates (Rodrigues et al., 2015). There are computerized tools to estimate the real number of carcasses. The determined variables and the results of the carcass search are analyzed to produce the number of casualties. GenEst (a generalized estimator of mortality) is a suite of statistical models and software tools for generalized mortality estimation. It was specifically designed for estimating the number of bird and bat fatalities at solar and wind power facilities. GenEst is used to estimate the real number of carcasses from the observed number.

All 14 active turbines and the area under the Energy Transmission Line were surveyed. As a result of the Spring 2019 mortality survey, a total of 67 carcasses, including 3 birds and 64 bats, were encountered at the turbine area. A considerable number of carcasses that have been identified are the members of Pipistrellus genus, specifically Common Pipistrelle (Pipistrellus pipistrellus) and Nathusius’s Pipistrelle (Pipistrellus nathusii) species are predominant based on both quantitative (wing length) and qualitative features (color, ear shape) of the carcasses. This finding is also supported by previous acoustic bat surveys conducted in order to determine bat activity levels within the Project Area. Both species are not listed as threatened by the IUCN, however, special effort should be given for the protection of Nathusius’s Pipistrelle species because of its migratory nature as considering the significance of the impact. Tissue samples of each carcass are sent to a laboratory for species identification through DNA profiling. At the time of the ESIA study, carcass studies are underway. The outcomes of the carcass studies will be used to evaluate the significance of species-specific impacts and develop specific mitigation measures as per EUROBATS Guideline.

Bird fatalities at the turbine areas consisted of one European Robin (Erithacus rubecula) and one possible Woodcock (Scolopax rusticola) and an additional unidentified bird found only as a feather spot.

No single carcass of a migratory soaring bird species (such as storks and birds of prey) has been found during the surveys.

### Mitigation Measures for Birds and Bats

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

- The Project Company will continue with the bird and bat activity monitoring studies together with carcass study during the construction phase of the Project including the first two years of operation, the monitoring would be continued by a qualified Independent Ornithological (for birds and bats) Expert (IOE) during the loan duration. The IOE will be employed during the migration periods and the IOE scope will be reviewed with the Lenders every 3 years.

- The collision risk assessment for migratory and resident bird species will be updated as per the collected field data by end of 2020.

- In line with Before-After Impact Control approach, depending on the outcome of the field data and updated risk assessment at post-construction phase, the Project Company will implement active turbine management strategy including development of shut-down on demand protocol to ensure risks are mitigated associated with the turbines leading to injury or mortality of bird species, if necessary. For bat species, measures as per EUROBATS Guidelines including increase of cut-in speed of turbine blades associated with bat injury or mortality will be implemented to ensure risks are mitigated associated with the turbines leading to injury or mortality of bat species. The implementation of the mitigation measures will further be verified through field monitoring data.

- The Company will develop a turbine shut down protocol defining criteria and mechanisms to be used in taking shut down decisions by the IOE. Wind turbines will be shut-down based on a written Notice to Close issued by the IOE, although due to the requirement to provide immediate shut down in the field the first point of command will be via telecommunication links (information on these instances will be provided to the Lenders within 3 days).

  The IOE will provide written notice and keep a register of all such actions which will be immediately reported to the Lenders as well as local authorities upon request. Summary of information will be published annually. Turbine specific cut-in wind speed will be proposed, based on the bat activity data collected in 2019 and correlation with meteorological parameters (wind, temperature, humidity and precipitation). The measures will be reassessed each year based on the new information collected on the existing wind farm and new development.

- A Biodiversity Action Plan (BAP) will be developed and implemented for the management of flora and fauna species of conservation importance including implementation of in-situ and ex-situ measures as identified during the ESIA study and update the BAP as necessary following availability of new field data. The BAP will need to contain measures to ensure that a no-net-loss of Priority Biodiversity Features and a net-gain of Critical Habitat is achieved through the application of the mitigation hierarchy. As a living document BAP will be due for revisions and updates as the Project proceeds, allowing to reflect any additional measures required to be taken for conservation of habitats and species.

## 3.7 Visual Impact Assessment

The existing components of the Kiyikoy WPP have already resulted in changes in the visual environment. The additional turbines to be erected and operated will result in further changes in the visual environment.

The visual effects of the land preparation and construction activities such as topsoil stripping, earthworks, stockpiling of excavated materials, movements of heavy transportation vehicles, erection of temporary construction facilities will be temporary, limited in geographical extent and removed upon completion of the construction phase.

As the Capacity Extension Project will utilise the substation, ETL and main access road of the existing Kiyikoy WPP, there will be no additional visual impact due to construction of associated facilities.

The visual impact (magnitude of change) of the Project on 13 different receptors has been assessed by using internationally accepted 3D visualisation and GIS tools (Google Earth and Esri Arc Map).

The closest residential receptor in Kiyikoy town (VP-3) and the building in the north of T15 (VP-8) have been selected as the receptors with the highest sensitivity. For these receptors, the appearance of existing and new turbines was visualised by using field photos and photomontage tool of the relevant computer software (WindPro 3.3). Cumulatively (including the existing and new turbines), 10 turbines will be visible from VP-3 and 10 turbines will be visible from VP-8.


A Habitat Restoration (Rehabilitation) Plan, including reforestation as permitted or other measures as suggested by the forestry authorities, will be implemented throughout the operation phase

At the point when the closure decision is taken, the Project units including the turbines, ancillary buildings and associated infrastructure would be dismantled and removed. The Project Company will develop a detailed Rehabilitation Plan after the closure decision is taken for the Project in order to minimise the residual visual impacts.

## 3.8 Social Impact Assessment

The social impact assessment of Kiyikoy WPP Project is based on a combination of desktop study and field data collection. The social study area and the key social elements relevant to the Project are delineated in Figure 3-2.

Key informant meetings, interviews with the Project Affect Persons (PAPs), focus group meetings and meetings with the local governmental and non-governmental stakeholders as well as internal stakeholders of the Project has been undertaken within the social study area. Meetings conducted and stakeholders consulted as part of the social field surveys is summarised in Table 3-1.

**Table 3-1. Social Field Surveys – Meetings/Consultations Conducted**

| No | Consulted Stakeholders | Number of Institutions/ Meetings | Number of Consulted Stakeholders |
|---|---|---|---|
| **A. Consultations with Governmental Organisations (Total)** | | **12** | **14** |
| 1 | Kirklareli Governorate | 1 | 1 |
| 2 | Provincial Directorate of Environmental and Urbanization | 1 | 1 |
| 3 | Provincial Directorate of Agriculture | 2 | 3 |
| 4 | Vize Directorate of Forestry | 2 | 4 |
| 5 | Kiyikoy Sub-district Directorate of Forestry | 1 | 1 |
| 6 | Vize District Directorate of Agriculture | 2 | 1 |
| 7 | Vize Sub-governorate | 1 | 1 |
| 8 | Vize Municipality | 1 | 1 |
| 9 | Public Education Center | 1 | 1 |
| **B. Consultations with Non-governmental Organisations (NGOs)** | | **9** | **11** |
| **C. Socio-economic Field Research (Total)** | | **20** | **36** |
| 1 | Preliminary Face to Face Meetings with the Mukhtars | 5 | 5 |
| 2 | In-depth Interviews with the Mukhtars | 5 | 5 |
| 3 | In-depth interviews with the Community | 4 | 4 |
| 4 | Focus group discussions | 4 | 19 |
| 5 | Household surveys | 1 | 1 |
| 6 | Other Local Business | 1 | 2 |
| **Total** | | **41** | **61** |

Primary source of income in Kiyikoy and Kislacik settlements is forestry through oak charcoal production, market sale by villagers (allowed by forest management) and planted tree sale (allowed by forest management). Fishery, animal husbandry, tourism and mushroom selling are other sources of income in these settlements. Summary of the Project-related land acquisition and the potential economic impacts on forest users, livestock breeders, beekeepers and mushroom collectors due to access restrictions is provided in Section 3.9. Potential social impacts on local communities due to noise generation during operation (Section 3.2), air emissions during construction (Section 3.3), Project-related traffic, limited influx of Project personnel during construction and shadow flicker during operation (Section 3.11) is presented in other respective sections of this NTS.

A disabled vulnerable person with financial difficulties lives in the house (on a registered agricultural parcel with the Parcel no. 101/205) located 200 m north of T15. The legal owner of the house resides in Kislacik village. The vulnerable person is currently using this house for accommodation with the permission of the legal owner. The house will not be directly affected from the Project-related land acquisition. This said, both construction related temporary impacts and operation related permanent impacts are separately assessed in respective EHS topic. On the other hand, the construction related effects including dust emissions and noise generation might temporarily affect this receptor during the period of construction activities to be conducted at the location of T15. Upon completion of the construction works at this location, construction related impacts will cease.

- The Project Company will further engage with the vulnerable PAP living in the north of T15 during the ESIA public disclosure period and inform the PAP on the potential operational noise and shadow flicker impacts and ice throw risk of the Project based on the findings of the ESIA and the proposed mitigation measures including the option for relocation during the construction and operation. Based on the vulnerable PAP's willingness or unwillingness to relocate during the ESIA public disclosure period, the management measures will be taken. If the PAP is willing to relocated, a Resettlement Action Plan (RAP) will be developed and implemented in line with EBRD PR5. If the PAP is unwilling to relocate, noise and shadow flicker impacts

and the risk of ice throw will be managed in line with the measures summarised in the respective sections of this NTS and detailed in the Project ESIA and ESAP.

- Apart from the impact monitoring and management, the Project Company also plans to provide support to this vulnerable PAP as part of the Corporate Social Responsibility (CSR) activities to improve his living standards.

As the contractors will be contractually required to maximise use of local workforce, especially by utilising the experienced and qualified workforce available in Kiyikoy. the impact of the Project related employment (workers' influx) on the population movements in the region is considered to be limited during the temporary construction phase. On the other hand, the Project Company will analyse the accommodation options preferred/selected by non-local workers in collaboration with the Contractors' management and ensure that service buses are provided for the non-local workers accommodating in the nearby district and town centres in order to ensure safe travel of the Project workers to the Project site and minimise Project-related traffic in the region. Additionally, the Project Company will ensure that all the direct and contracted workers are provided with trainings on BEE's corporate Social Guidelines at the beginning of employment, which will also cover the code of conduct for accommodation, as well as general moral, cultural and ethical rules required from all Project workers in order to avoid potential social impacts of the Project on the local communities due to off-site accommodation.

Tourism is an increasingly developing sector in Kiyikoy town. There are two beaches (Municipality Beach and Servez Beach) in the region, which are visited by local and foreign tourists frequently. Disruption of access to Kiyikoy town by residents and tourists has been recognised as a risk for which measures have been developed. In order to avoid any disruption for the Kiyikoy residents and the visitors of the settlement/tourists using the existing access road of the Kiyikoy town, the Project Company will;

- Improve the existing road providing access to the License Area and ensure that the Project-related traffic uses this improved access road only;

- Place necessary warning signs and visible instructions at the diverging points in order to ensure that the Project-related traffic is diverted to the improved access road and local traffic is diverted to the existing Kiyikoy access road.

- Schedule the timing of transportation activities in consideration of the daily traffic volumes and peak hours on local road network.

- Communicate the scheduling information and planned traffic disruptions to all related parties including authorities, local communities and nearby businesses in advance of the activities that may disrupt tourism.

- Continue engaging with the Kiyikoy Culture and Tourism Association order to exchange general information on the socio-economic profile of Kiyikoy town, tourism, livelihoods of local people and potential cumulative impacts in the region as per the Project SEP.

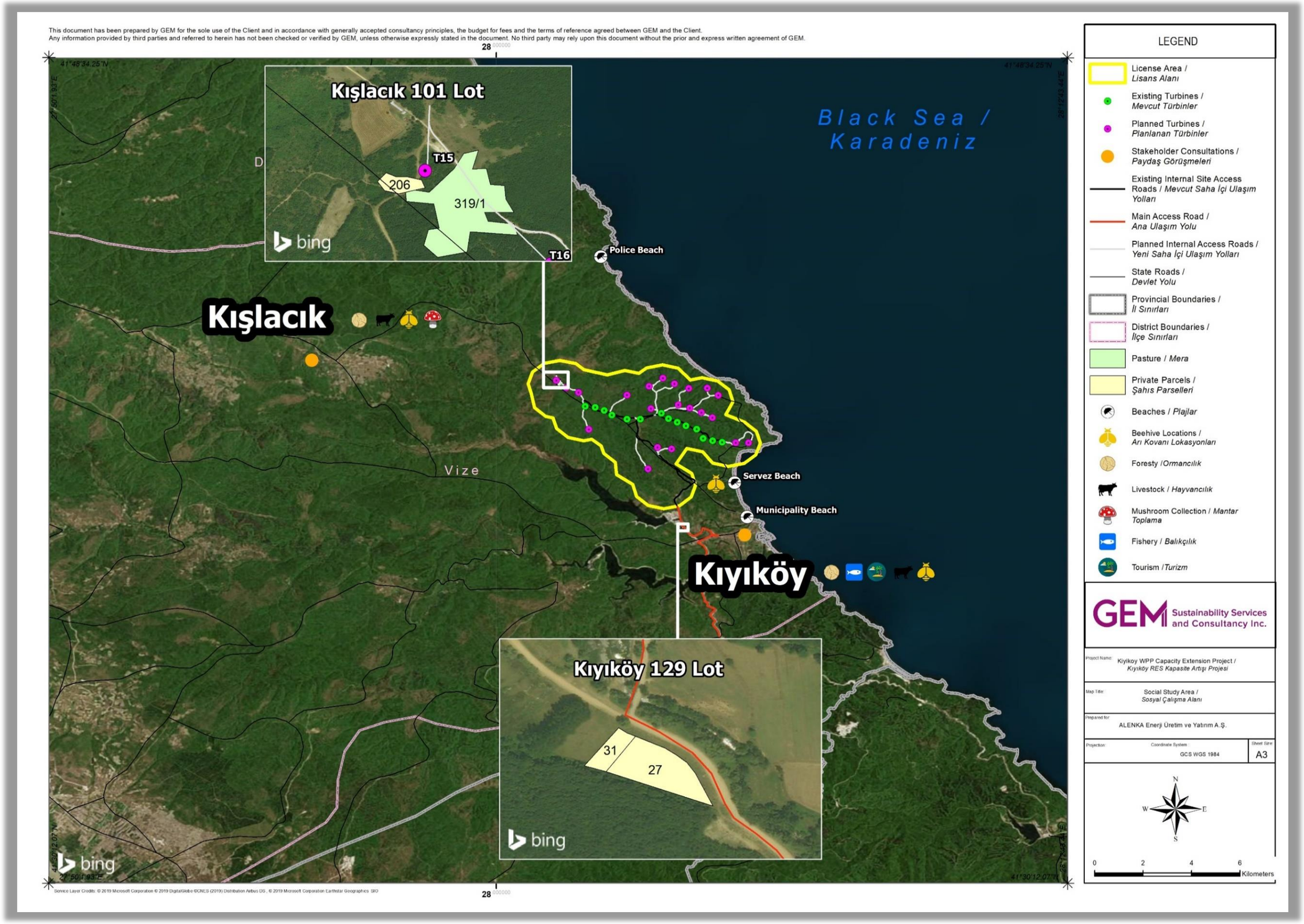



Figure 3-2. Social Study Area

## 3.9 Project Related Land Acquisition, Restrictions on Land Use and Livelihood Restoration Plan (LRP)

The Capacity Extension Project entails land acquisition for the construction of new turbines and site access roads. The Project-related land acquisition will partially affect two (2) state-owned forest parcels and three (3) privately-owned (agricultural) parcels registered in Kiyikoy town and Kislacik village and also a single pasture parcel registered in Kislacik village.

The Project-related land acquisition is likely to result in economic displacement of the PAPs as a result of partial loss of forest, pasture and agricultural land and temporary restrictions on the use of forest lands in Kiyikoy and Kislacik. Thus, the Project Company has developed a Livelihood Restoration Plan (LRP) as part of the ESIA. The LRP aims to establish the entitlements for the PAPs and communities and ensure that these are provided in a transparent, consistent and equitable manner to mitigate potential impacts of the Project on the income sources and livelihoods of the PAPs. The LRP has been prepared to fulfil the requirements of EBRD PR5.

The Project Company has avoided physical displacement by proper siting of the Capacity Extension Project unit and minimised land acquisition and associated economic impacts on PAPs by utilising the current main access road, current substation and the ETL of the existing Kiyikoy WPP and also the existing forest roads to the extent possible. Elimination of one of the turbines has further reduced the land acquisition requirements of the Project.

All PAPs (no informal user has been identified in this Project) whose livelihoods are affected by the Project are eligible for the livelihood restoration and compensation measures to be provided as part of the Project LRP. In this regard, entitlements will be provided to PAPs affected by the following impact types/categories as per the LRP:

- Permanent Loss of Privately-owned Agricultural Land
- Loss of income and/or sources of livelihood associated with acquisition of Privately-owned Agricultural Land
- Loss of/damages to crops/trees or infrastructure due to Project's construction activities
- Restricted access to the forest land within the License Area temporarily during the construction phase due to safety concerns.
- Loss of limited part of forest land
- Partial loss of grazing area

For the Kiyikoy WPP Capacity Extension Project, a Public Benefit Decision (Decision No. 7837-14) was issued by EMRA on May 10, 2018. Based on this decision, the Project Company initially evaluated the expropriation alternative for the acquisition of privately-owned lands (executed by the state agency responsible from expropriation) as per the Turkish Expropriation Law (No. 2942). In expropriation, cash compensation is provided by the state at determined compensation value. On the other hand, the Project Company is committed to implement the Project in line with EBRD's E&S Policy and related PRs including PR 5 on Land Acquisition, Involuntary Resettlement and Economic Displacement. Thus, the Project Company aims to acquire the privately-owned parcels required for the Project through negotiated settlement, whenever this is achievable. The Company management has already initiated negotiations with the owners of the related parcels and conducted meetings with the available shareholders of the parcels since July 2019. The Project Company will make all the reasonable efforts to avoid expropriation and acquire the related parcels through negotiated settlement meeting the objectives of EBRD PR5.

Payments for the use of forest land throughout the Project life are done to General Directorate of Forestry as per the Forestry Law.

Key entitlements that are planned to be provided by the Project to the PAPs eligible as per the Project LRP are summarised below:

| Topic | Potential Impact | Entitlement Measures |
|---|---|---|
| Acquisition of privately-owned parcels | Project-related land acquisition will affect the parcels registered in Kiyikoy town and Kislacik village. 3 privately owned parcels will be acquired by the Project | The Project Company will adopt the willing-buyer willing-seller principle and acquire the privately-owned parcels required for the Project through negotiated settlement, whenever this is possible.<br><br>In case the Project Company achieves to acquire the privately-owned parcels through negotiated settlement, compensation will be provided at full replacement cost.<br><br>In case of expropriation (whenever this is unavoidable), any gap between full replacement cost and expropriation value to be determined (by the related state agency responsible from expropriation) will be identified and where necessary, compensated by the Company. If there will be any damage to the crops/tress/lands during the construction, the Project Company will immediately compensate damages caused by the Project activities (to be identified based on evidence) to crops/trees or existing infrastructure at full replacement value. |
| Partial acquisition of forest parcels | Total forest area of Kiyikoy and Kislacik is 12,139 hectares (2019), which consists of mainly oaks. According to the related Forestry Management Plan, the Kiyikoy WPP License Area corresponds to mainly Forest Products Production Function, which serve for forestry product production. The forest area that will be impacted by the construction of the units for the new turbines consists of 1% of the total License Area and 0.2% of the total forest area of Kiyikoy and Kislacik settlements. As, the Project's impact on forest resources is very limited and the forest area that is outside the area affected by the Project (footprints of the turbines and internal site access roads) is large enough to sustain ongoing forestry activities such as firewood supply, the Project is not anticipated to have a negative impact on the livelihoods of the PAPs sourced from forestry activities. In addition, the land to be acquired for the Project will not impede or restrict PAPs' access to common resources as the License Area or the Project units except the existing substation site will not be fenced. | The mukhtars, members of Kiyikoy and Kislacik Development Cooperatives, forest users, and livestock producers will be regularly informed about the construction schedule and sites that will be restricted during the construction period for health and safety purposes. The Project Company will implement the SEP and consult with the forestry authorities and the forestry cooperative to mitigate potential impacts on the livelihoods of the forest users and maximise the benefits they can gain from the opportunities (e.g. services that can be provided to the Project by the forest workers) that will emerge as a result of Project's construction. The Project Company will improve the existing forest roads and accessibility of the users of the forests within the License Area, who are allowed to conduct their activities as permitted by the forestry authorities. |
| Livestock Breeding | Practiced in Kiyikoy and Kislacik. The total size of the Kiyikoy pasture area is 429 decares, consisting of 19 parcels. Among this, only 1 pasture parcel (Parcel no. 319/1) will be affected by the Project (26% of the total parcel area will be affected). There is no pastureland in Kislacik village. | The remaining part of the pasture parcel 319/1 (in Kiyikoy) will be improved to mitigate adverse economic impacts on the households involved in animal husbandry. Project Company will collaborate with the Provincial Directorate of Agriculture and Forestry in order to identify and implement potential feasible pasture improvement measures which will be subject to final approval of |

| Topic | Potential Impact | Entitlement Measures |
|---|---|---|
| | There is no grazing prohibition for bovine and ovine animals in the forest areas. | the Pasture Commission established under the Provincial Directorate.<br><br>The ovine and bovine breeders will be informed about the construction activities.<br>PAPs who breed ovine (as identified by the related District Directorate of Agriculture) in Kiyikoy and use the affected pasture land (Parcel 319/1) for generating part of their income from ovine breeding will be provided with animal husbandry support (one-time) for the period of the construction activities that temporarily restrict the use of Parcel 319/1 (support will be for maximum 10 ovine per PAP) . The Project Company will not put any restriction on the use of the acquired pasture parcel during the operation phase. |
| Beekeeping | Carried out both in Kiyikoy and Kislacik. The ESIA studies identified that there are no active beehives and beekeeping activities within Project License Area. The closest beehives are located outside the License Area, approximately 1.7 km south of T34, adjacent to an existing forest road in the vicinity of the Turk Stream project site. During focus group meeting with beekeepers, it has been identified that there has not been a complaint or negative feedback on existing turbines' impact on beekeeping in the region until today. The air quality and noise modelling results conducted as part of the ESIA showed that the Project's construction activities will not cause any significant effect at the location of the existing beehives. The existing forest road on which the beehives are located is not an access road planned to be used for Project-related transportation. The Project is not likely to result in any impact on livelihoods sourced from existing beekeeping activities in the region. | Prior to start of construction phase, the Project Company will collaborate with the mukhtars, related authorities and agencies in order to inform the local beekeepers will be notified about the construction areas and schedule.<br>During the construction period, if beehives are identified in the vicinity of the construction areas and in case required, the beehive owners will be contacted to provide for the relocation of beehives.<br><br>If any Project related damage to beehives is identified (through the mukhtars and related local authorities where necessary), compensation at replacement cost will be paid to the beekeepers.<br><br>The Project SEP including the grievance mechanism will be implemented to inform the beekeepers about the Project schedule, activities and units and collect their relevant concerns and suggestions for being consideration in the Project planning. |
| Mushroom Gathering | Only practiced in Kislacik. It is mainly regarded as women's job. The mushroom collectors interviewed during the field surveys informed that the forest is abundant with mushrooms, and Project impacted area is not within their mushroom collection zone, as they usually collect mushrooms close to their village. The forest area to be acquired for the construction of Capacity Extension units is very limited when compared to the ample forest land available in Kislacik village. As the License Area or the Project units except the existing substation site will not be fenced, the Project will not cause any restriction to access to the forest land.<br><br>The Project is not anticipated to cause any impact on mushroom gathering activities of Kislacik villagers. | The Project Company considers providing support to mushroom gatherers through the Corporate Social Responsibility (CSR) Plan to be developed and implemented. |

Project-specific Stakeholder Engagement Plan and the Public Grievance Mechanism will be implemented to regularly consult with PAPs whose livelihoods are likely to be affected and address any relevant grievance and plan/take corrective actions in line with the Grievance Mechanism, as necessary.

Implementation of LRP will start with Lenders' approval of the LRP and continue until the end of second year of the operation of the Capacity Extension Project.

The Project Company will allocate an adequate budget for the implementation of the LRP.

## 3.10 Labour and Working Conditions

Turkey is party to a multitude of ILO conventions, including but not limited to the conventions on equal treatment of employees, gender equality, child labour, forced labour, OHS, right of association and minimum wage. The current Turkish Labour Law is aligned with the international labour standards and EBRD PR2 requirements, including aspects such as child labour, forced labour, non-discrimination and equal opportunity and right to join workers' organisations.

The Project Company will strictly comply with the requirements of the Turkish Labour Law in the management of Project's labour aspects. All contractors/subcontractors will also be required to fully meet the legislative requirements and implement Project Standards for management of their workforce. The construction workers will be contracted by the Contractor for a fixed term duration covering only the construction phase activities. The workers will be informed on the fixed term duration of their contracts at the time of the employment, which will be explicitly reflected in the individual contracts.

Within the scope of the Capacity Extension construction works, worker's accommodation is not planned to be provided on-site. Potable and sanitary water will be supplied in line with the requirements of the national legislation. On site facilities such as sanitary facilities and medical/first aid facilities will ensure compliance with the Project Standards.

The existing operation team will continue after the Capacity Extension Project is commissioned by strengthening the capacity as required. The Project Company will implement the HR Policy developed in line with the Project Standards. Furthermore, the Project-specific Contractor Management Plan and Supply Chain Management Plan will provide the framework for the management of labour related topics in line with the Project Standards.

## 3.11 Occupational and Community Health and Safety

The major Occupational Health and Safety (OHS) hazards for the land preparation and construction phase of wind energy facilities are related to earthworks required for internal site access road construction and preparation of turbine foundations and lifting operations. Working at height is a prominent risk that needs management both during the construction work and also in maintenance works to be performed during the operation phase.

BEE has corporate OHS manuals and requirements as well as systems in place relevant to Personal Protective Equipment (PPE) use, work permit, incident reporting, etc. This manuals, requirements and systems will be implemented during the construction and operation phases of the Project in order to avoid OHS risks. General (basic) and job specific OHS trainings will be provided to all Project employees. Job specific hazards will be analysed and special measures (e.g. fall protection systems, setting exclusion zones under any work at height, restrictions on the use of heavy vehicles, driving rules, etc.) will be taken to manage the OHS risks of the construction and operation activities.

Potential Community Health and Safety (CHS) related issues that require management in wind power projects as per EBRD PR4 primarily include abnormal load transportation, blade and ice throw, aviation, electromagnetic interference and radiation, public access, and security Personnel

To avoid risks associated with abnormal transportation, Project-specific road surveys have been conducted to identify the risks along the planned transportation routes, assess the logistical requirements and constraints, and determine the most effective and safest routes in consideration of the Project logistics as well as CHS risks. The Project Company will ensure that the necessary adjustments and improvements identified in the Road Survey Report are completed prior to the start of Project-related transportation and consult with the related governmental authorities (e.g. General Directorate of Highways, local police forces, etc.) prior to the start of transportation activities to ensure that all necessary health and safety measures are in place during the transportation of heavy equipment. The Project-

specific Transport and Traffic Management Plan, describing general traffic rules and measures and driving safety measures will be implemented throughout the construction phase.

Access to the construction sites and routes will be temporarily restricted during the construction phase to avoid potential health and safety risks (due to use of heavy vehicles, construction vehicles causing site traffic, earthworks, electrocution hazards due to cabling works, etc.) on local community members using the forest lands within the License Area.

The existing Kiyikoy WPP receives security services from a reputable Turkish private security contractor, which is a firm certified by the Ministry of Interior. The Project Company has in place a Private Security Permit Certificate (for unarmed security) issued by the Kirklareli Governorate. As of August 2019, 6 of the 16 operations personnel are serving as unarmed private security officers, who are from Kiyikoy. The Project Company will continue working with reputable firms and monitor the trainings to be provided by the private security contractor to the security officers to ensure that the security officers employed in the Project receive periodical trainings on adequate use of force and appropriate conduct towards the Project employees and the local communities in line with the requirements of national legislation as well as EBRD PR2 and PR4.

For the operation phase, shadow flicker effect of the Project has been assessed by using internationally accepted software tools. For ice throw risk management, the setback distance has been calculated for the new Vestas V136 turbines (372 m). There is a rural house located 200 m north of T15, which may be subject to shadow flicker effect and/or risk of blade ice throw. The Project Company will implement the RAP for the vulnerable PAP living in the setback distance of T15, if the vulnerable PAP is willing to relocate based on the resettlement options to be provided by the Project Company in line with EBRD PR5. Otherwise, the Project Company will monitor the ice throw risk by means of review of SCADA results, meteorological data recorded at the WPP and visual observation during the period between December and March (both inclusive) on an on-going basis throughout the operation. The Project Company will develop and implement an Ice Throw Risk Assessment and Management Procedure in order to identify the setback distances around the turbines and the measures to be taken within these distances (e.g. putting warning signs, communication procedures).

Marking and lighting of the turbines will be in accordance with the recommendations of International Civil Aviation Organization (ICAO). The turbine model and related equipment selected for the Capacity Extension Project fulfils the European Union (EU) Electromagnetic Compatibility (EMC) legislation on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

All relevant governmental and commercial institutions including the General Directorates of State Airports Authority and Civil Aviation and Turkish telecommunications company (Turk Telekom), have provided positive opinion letters for the Project as part of the zoning process.

The Smoke Detection and Lightning Protection systems of the selected turbine model meet the requirements of international standards ensuring fire safety of the Capacity Extension Project units.

An Emergency Management Plan Procedure is in place for the Kiyikoy WPP, covering the first aid and incidents and accidents that required evacuation, fire, earthquake, unfavorable weather conditions (flood, snowfall, etc.), interruptions on road transportation, sabotage/terrorist attack, poisoning, emergencies related with turbines, environmental incidents and health incidents including community health.

Based on the existing Emergency Management Plan Procedure, an Emergency Preparedness and Response Plan has been prepared as a stand-alone document in line with the EBRD PR1, PR2 and PR4 requirements. During the construction phase, the Emergency Preparedness and Response Plan will be implemented in order to avoid potential occupational and community health and safety risks. The Plan will be updated prior to start of operation phase as necessary.

## 3.12 Cultural Heritage

Studies for the identification and assessment of potential impacts on tangible and intangible cultural heritage within and in the vicinity of the Kiyikoy WPP License Area (“cultural heritage study area”) were conducted by REGIO Cultural Heritage Management Consultancy (“REGIO”). As part of the study, the experts conducted desktop studies, field research and consultations with the related local cultural heritage authorities (Ministry of Culture and Tourism, Edirne Regional Directorate of Cultural Assets).

The field research was conducted by REGIO on 11-12 April 2019. The cultural heritage team visited the locations of 21 turbines planned to be erected, new internal site access roads planned to be constructed and settlements located in the close vicinity of the Project License Area to gather field data on tangible and intangible cultural heritage elements relevant to the Project.

A registered 3rd Degree Archaeological Site ("Cingene İskelesi Mevkii Necropolis and Church Remains") is located within the Project License Area. The site is situated adjacent to an existing forest road, 286 meters south of access road to T34 and conserved as per the Law on Preservation of Cultural and Natural Assets (Law No: 2863). The Project activities will not cause any physical impact on this site as it is outside the construction area and planned transportation routes of the Project.


Remains of the Architectural Structure at Cingene İskelesi 3rd Degree Archaeological Site


Water Well Remains at Non-registered Potential Site

A non-registered potential site within the License Area has been newly discovered as part of the Project's ESIA studies. This potential site is located approximately 65 meters south of the planned T18, near the planned route of the access road to this turbine. The structural plan of the foundation was found to have no integrity due to destructions. The potential site could qualify as an idyllic farm belonging to late Ottoman period.

The Project Company officially notified Edirne Regional Board for Conservation of Cultural Assets regarding this potential archaeological site. The experts from the Regional Board carried out a field investigation at the potential site on 12 June 2019 and identified that the potential site does not have any important feature that is to be protected/managed under the Law on Preservation of Cultural and Natural Assets (Law No: 2863). With its official letter dated 27 June 2019, the Regional Board has allowed the Project Company to undertake the activities planned as part of the Kiyikoy WPP Capacity Extension Project at this site.

Intangible cultural heritage surveys were carried out based on face-to-face interviews held with people living in Kiyikoy town centre and Aksicim, Hamidiye and Kislacik villages. The interviews revealed that the residents of Kiyikoy practice oak charcoal manufacturing, woodcutting and water buffalo husbandry in the forest land and on the agricultural parcels located in between the forest parcels. As the vast forest land in Kiyikoy will remain accessible to local communities, the Project will not cause any significant impact on the existing oak charcoal manufacturing or lumbering activities.


Intangible Cultural Heritage Interviews with Local Charcoal Producers

The Project Company has developed a Project-specific Cultural Heritage Management Plan (CHMP) including the Chance Find Procedure as part of the ESIA studies. The CHMP and the Chance Find Procedure will be implemented by the Project Company and the contractors (through contractual requirements) during the construction phase. Prior to the start of land preparation and construction activities, the site boundaries will be marked by using proper materials (e.g. safety strips, fence, information signs, etc.) and all Project personnel (including direct and contracted workers) will be informed about the registered and unregistered sites close to the construction areas to avoid uncontrolled entries.

## 3.13 Cumulative Impact Assessment

There are multiple existing and future WPP projects in the wider region of the License Area (within 30 km from the boundaries of the License Area). Besides the WPP projects, the Landfall Terminal and the associated facilities of the TurkStream Project are also located at the southern/south-eastern boundary of Kiyikoy WPP License Area. Potential cumulative environmental and social impacts of the Project on the Valued Environmental and Social Components (VECs), together with other existing and reasonably foreseeable future Projects, have been assessed by means of a Cumulative Impact Assessment (CIA) study conducted in line with the relevant international guidance. The map of the CIA study area, showing the locations of all other existing and future developments together with the VECs in the wider region, is presented in Figure 3-3.

Amongst the WPP projects, YEKA Kiyikoy WPP (offshore) and YEKA Kirklareli WPP (406 MWe onshore) projects (categorised as hypothetical projects which have considerable uncertainty for proceeding) appear as the largest developments in the region. TurkStream Project is also another major investment located between the Kiyikoy WPP and Kiyikoy town centre. For the management of cumulative impacts of these projects on the Istranca Mountains KBA, priority biodiversity (flora and fauna) features, avifauna species with high collision risk and bat species as well as the local communities and their livelihoods and socio-economic conditions, a collective responsibility which requires individual actions to eliminate or minimise the contribution of each action/development is essential. Thus, the Project Company will focus on the management of its Project-level impacts on the VECs, in order to contribute to the mitigation of cumulative impacts in the wider region. Project-level measures for the management of potential impacts on the VECs are summarised in the respective sections of this NTS and also provided in details in the ESIA Report in details.

The IFC's Cumulative Effects Assessment for Tafila Region Wind Power Projects (2017) puts forward quantification of post-construction impacts and implementation of an adaptive management approach as part of CIA Mitigation and Monitoring Plan. To this end, project-specific on-site measures focusing on monitoring of post-construction flight activity coupled with active turbine management strategy is proposed together with inter-site monitoring activities and adaptive management strategy and joint management/action plans for priority VECs.

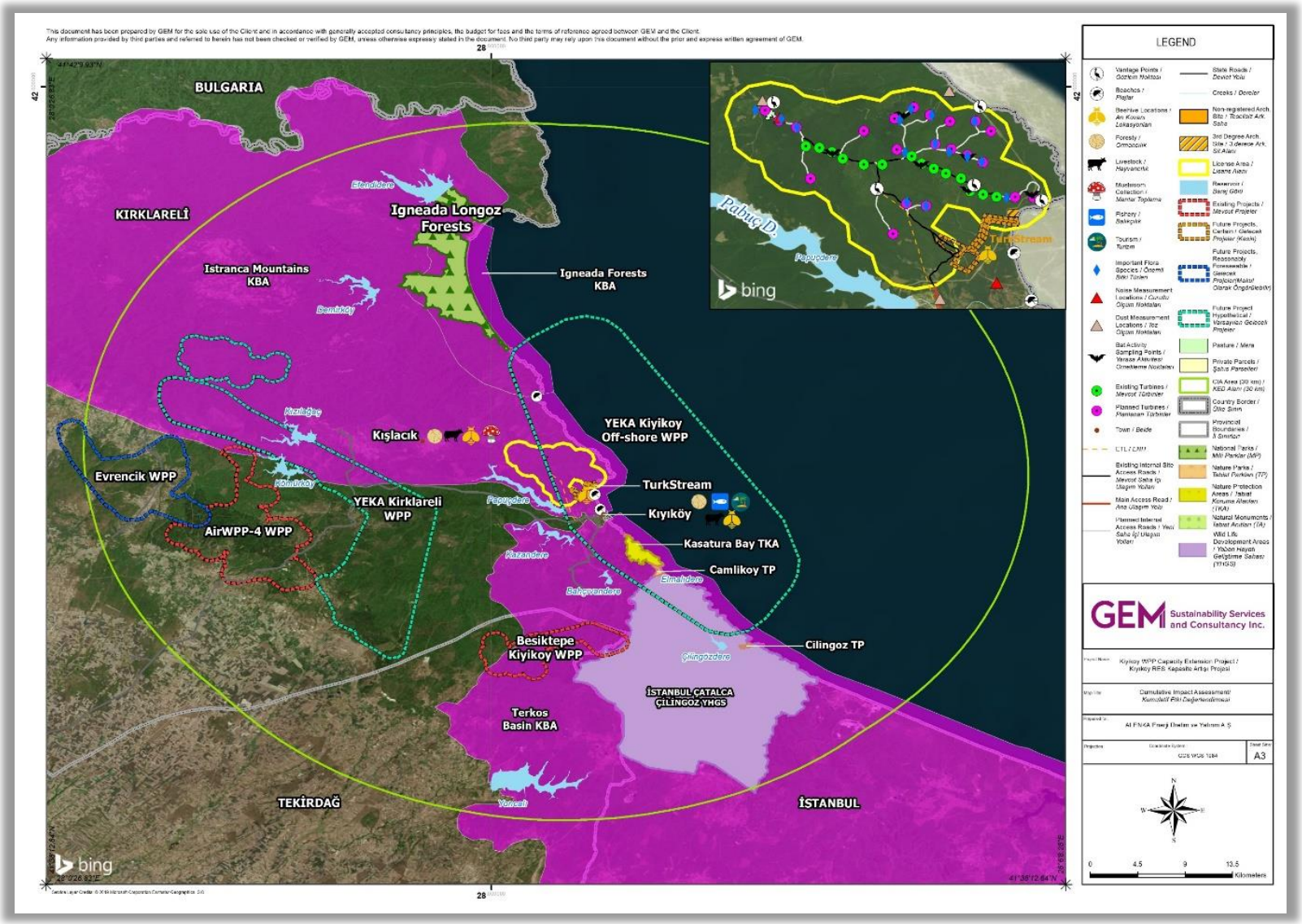



Figure 3-3. Map of Cumulative Impact Assessment

# 4. Environmental and Social Management System (ESMS)

The Project Environmental and Social Management System (ESMS) has been developed as part of the ESIA process. The ESMS aims to provide a structured approach for the management of environmental and social (E&S) issues throughout all phases of the Project in line with the Project Standards.

The key elements of the ESMS are listed below:

- Environmental and Social Policy
- Environmental and Social Management Plan (ESMP)
- Organisational Capacity and Commitment
- Stakeholder Engagement (including Grievance Mechanism)
- Emergency Preparedness and Response
- Project Monitoring and Reporting

The ESMS structure of the Project, including the specific E&S policies and management plans that have been developed and will be implemented in the Project are summarised in Figure 4-1.

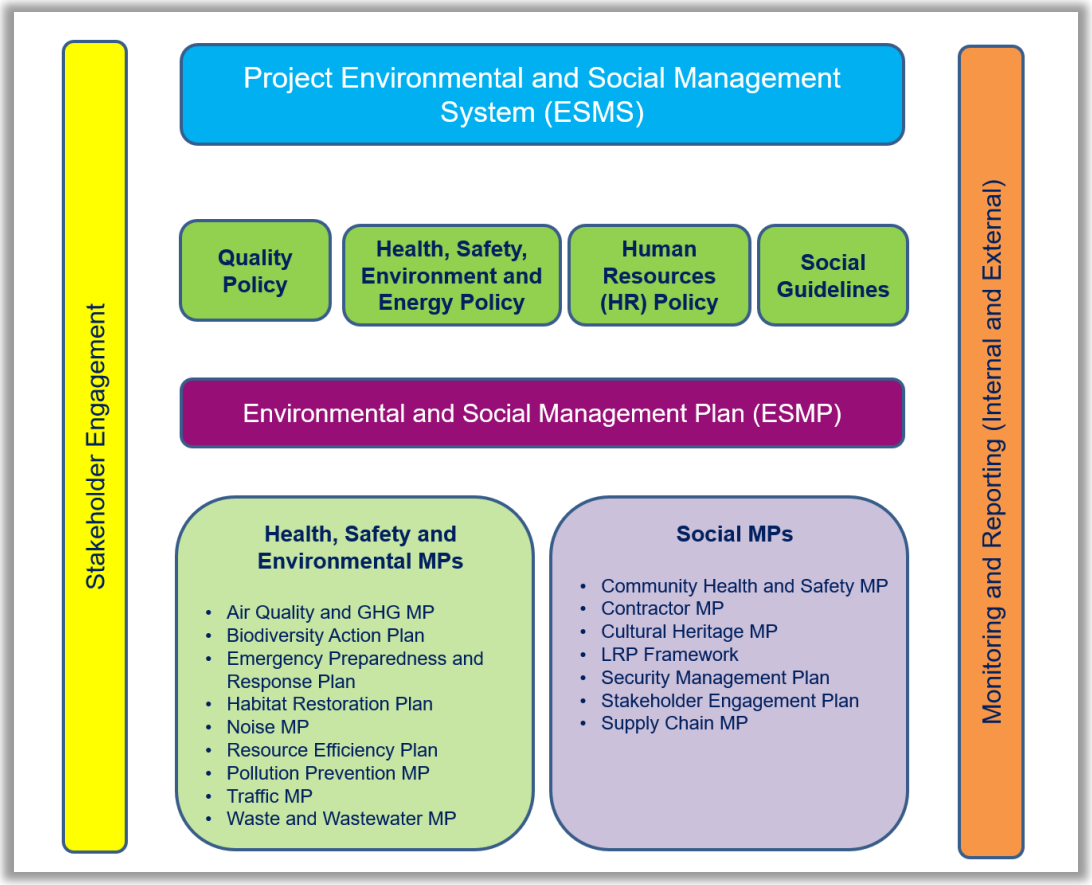



**Figure 4-1. Summary of ESMP Implementation under the Project ESMS**

The ESMS team of the Project will be responsible from the implementation of all E&S policies and management/action plans. As the main contractor and sub-contractors are required to operate in compliance Project Standards, the Project Company will require them to establish their ESMS teams to ensure that Project activities under their responsibilities are carried out in line with the Project Standards. The Project ESMS team structure is illustrated in Figure 4-2.

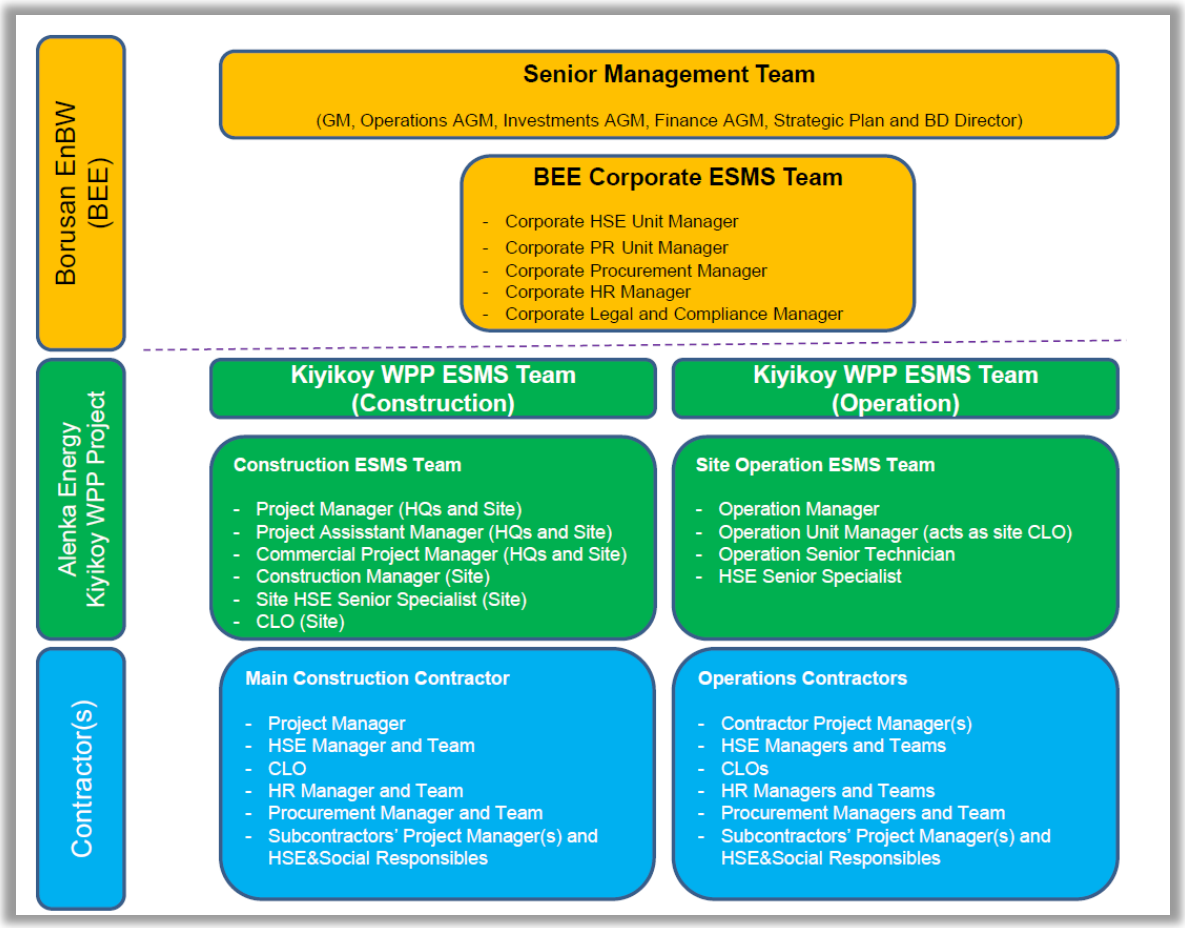



**Figure 4-2. Kiyikoy WPP Project ESMS Team**

For monitoring of ESMS performance and to identify if the goals and outcomes set by the ESMS are achieved, the Project Company will carry out internal monitoring activities. In addition to this, the Lenders will also be monitoring the E&S performance of the Project through their independent consultants at the frequencies to be determined for the construction, operation and closure phases.

The Project Company will communicate the overall progress and the E&S performance of the Project to the stakeholders, including the affected communities, at least on an annual basis. The reporting to affected communities will be in Turkish, in an easily understandable and non-technical way.

# 5. Environmental and Social Action Plan (ESAP)

An Environmental and Social Action Plan (ESAP), containing the environmental and social measures to be taken has been prepared for the Project. The ESAP will be implemented by the Project Company in order ensure compliance of the Project with EBRD.

Key actions defined in the Project ESAP include the following:

- Implement the Environmental and Social Management System (ESMS) developed for the Project;
- Develop and implement the specific Environmental and Social Management Plans including the following:
  - Air Quality and Greenhouse Gas Management Plan
  - Community Health and Safety Management Plan (covering security management aspects)
  - Contractor and Supply Chain Management Plan
  - Cultural Heritage Management Plan (including the Chance Finds Procedure)
  - Emergency Preparedness and Response Plan
  - Habitat Restoration Plan
  - Human Resources Management Plan
  - Noise Management Plan
  - Occupational Health and Safety Plan
  - Off-site Accommodation Management Plan
  - Security Management Plan
  - Traffic Management Plan
  - Training Plan
  - Waste and Wastewater Management Plan
- Establish and maintain an organizational structure and capacity adequate for the implementation of the ESMS including the site HSE Senior Specialist and the CLO for the construction and operation phases;
- Ensure that the main construction contractor has the competent HSE personnel for the effective implementation of the ESMS of the Project Company;
- Complete the permitting requires for construction and operation in line with applicable national legislation (e.g. final forestry permit, zoning plan approval, building permit, etc.);
- Ensure periodic reporting to affected communities on Project activities and Project E&S performance;
- Implement the SEP including the Grievance Mechanism (including internal and external stakeholders) throughout the Project;
- Develop and implement a Community Development Plan (CDP) as part of Corporate Social Responsibility (CSR);
- Conduct the air quality and noise monitoring programs in line with the ESIA;
- Develop and implement a Project-specific Emergency Preparedness and Response Plan for the construction and operation phases;
- Implement the LRP developed for the Project;
- Further engage with the vulnerable PAP living in the setback distance of T15 during the ESIA public disclosure period and inform the PAP on the potential operational noise impacts of the Project based on the findings of the ESIA and the proposed mitigation measures including the option for relocation during

the construction and operation; based on the vulnerable PAP's willingness or unwillingness to relocate during the ESIA public disclosure period, implement the management measures:

- If the PAP is willing to relocated, develop and implement a RAP in line with EBRD PR5
- If the PAP is unwilling to relocate, undertake periodical noise monitoring (e.g. provision of proper insulation for the relevant elements of the building, equipping blades of T15 with a technology called serrated trailing edges to reduce maximum sound level at this turbine) and on-going engagement with the PAP regarding shadow flicker impact and risk of ice throw to ensure that the Project's potential impacts/risks are compliant with the applicable national and international standards.

- Develop and implement an Ice Throw Management Procedure;

- Ensure a Completion Audit is conducted by independent experts when all activities defined in the LRP and/or RAP are completed to verify that LRP and/or RAP implementation achieved the objectives of EBRD PR5;

- Continue bird and bat activity studies together with carcass study during the construction phase of the Project including the first two years of operation, the monitoring would be continued by a qualified Independent Ornithological (for birds and bats) Expert (IOE) during the loan duration. The IOE will be employed during the migration periods and the IOE scope will be reviewed with the Lenders every 3 years.

- Implement active turbine management strategy including development of shut-down on demand protocol to ensure risks are mitigated associated with the turbines leading to injury or mortality of bird species, if necessary. Implement measures as per EUROBATS Guidelines including increase of cut-in speed of turbine blades associated with bat injury or mortality to ensure risks are mitigated associated with the turbines leading to injury or mortality of bat species. Verify through field monitoring data.

- Develop a turbine shut down protocol defining criteria and mechanisms to be used in taking shut down decisions by the IOE. Wind turbines will be shut-down based on a written Notice to Close issued by the IOE, although due to the requirement to provide immediate shut down in the field the first point of command will be via telecommunication links (information on these instances will be provided to the Lenders within 3 days). The IOE will provide written notice and keep a register of all such actions which will be immediately reported to the Lenders as well as local authorities upon request. Summary of information will be published annually. Turbine specific cut-in wind speed will be proposed, based on the bat activity data collected in 2019 and correlation with meteorological parameters (wind, temperature, humidity and precipitation). The measures will be reassessed each year based on the new information collected on the existing wind farm and new development.

- Develop and implement the Biodiversity Action Plan (BAP) as per EBRD PR6 that will include species-specific mitigation measures as per international guidelines.

Effective implementation of the actions/measures contained in the ESAP will be monitored periodically, internally by the Company and externally by the Lenders and/or their advisors. Corrective action plans will be developed by the Company where necessary. Results of the monitoring studies will be compiled in Environmental and Social Monitoring reports that will be submitted to the Lenders in accordance with the frequencies to be determined by them.

Annual progress reports on the environmental and social performance of the Project will also be prepared and disclosed on the web-site.

# 6. Stakeholder Engagement

## 6.1 Who are Project's stakeholders?

In line with the definitions of international standards, the Project recognises a stakeholder as any individual, organisation or group that is potentially affected by the Kiyikoy WPP Project or that has an interest in the Project and its impacts.

The main stakeholder groups for the Kiyikoy WPP, as identified in the ESIA, are listed below:

**Central Governmental Organisations**

- Ministry of Energy and Natural Resources
- Energy Market Regulatory Authority
- Ministry of Agriculture and Forestry
- Ministry of Culture and Tourism
- Ministry of Environment and Urbanization
- Ministry of Labour and Social Security
- Ministry of Transport and Infrastructure
- Ministry of National Education

**Local Governmental Organisations**

- Kirklareli City Council – Environmental Assembly
- Local Emergency and Health Services
- Local Police Force
- Governorship of Kirklareli (inc. Provincial Directorates
- Kiyiköy Municipalit
- Kiyiköy Forestry Sub-District Directorate
- Vize District Governorate
- Vize Municipalit
- Vize District Directorate of Agriculture
- Vize Directorate of Forestry
- Vize Gendarmerie

**Local Communities**

- Headmen (Mukhtars) of Kiyikoy neighbourhoods and Kislacik village
- Local communities in Kiyikoy neighbourhoods and Kislacik village
- Vulnerable groups/persons in Kiyikoy and Kislacik
- Women PAPs in Kiyikoy and Kislacik

**Others**

- Non-governmental Organisations (NGOs) (international, national and local)
- Local businesses
- Academic/educational institutions
- Other projects in the wider region (TurkStream and other WPPs)
- Lenders

**Internal Stakeholders**

- BEE
- Direct employees of the Project Company
- Contracted workers (contractors and subcontractors) of the Project
- Company shareholders

## 6.2 How the Project engaged with its stakeholders to date?

The Kiyikoy WPP is in operation since August 2014. The Project is well known in the region and engagement with the stakeholders have been conducted conventionally by the operations team until the involvement of the Project Company. The current operations team include 8 personnel from Kiyikoy town, who have acted as a bridge in conveying Project information to the local people residing in Kiyikoy.

Stakeholder engagement activities conducted in the pre-ESIA and ESIA periods are summarised in Table 6-1.

**Table 6-1. Stakeholder Engagement Activities to Date**

| Stakeholder Engagement Activity | Target Stakeholder Group | Date / Period |
|---|---|---|
| **Pre-ESIA Period** | | |
| Public participation meeting at Kiyikoy Municipality as part of national EIA process (done by Previous Project Owner) | -Local communities and other interested parties | 4 December 2015 |
| Stakeholder meeting in Kiyikoy | -Kiyikoy Culture and Tourism Association | 30 October 2017 |
| Stakeholder meeting in Istanbul | -Kiyikoy Culture and Tourism Association | 1 November 2017 |
| Official correspondence as part of the national EIA process (with 13 different gov. institutions) | -Governmental stakeholders | 2016-2017 |
| Official correspondence as part of the zoning plan approval process (with 58 different gov. institutions.) | -Governmental stakeholders | 2017-2018 |
| **ESIA Period** | | |
| Consultations done as part of scoping study | -Internal stakeholders (existing operations personnel at the Kiyikoy WPP) | 18 April 2019 |
| Key stakeholder meetings | - Governmental stakeholders at provincial, district and level (12 institutions)<br>- Headmen (mukhtars) of Kiyikoy town (three neighbourhoods), and Kislacik and Hamidiye villages (5 settlements) | 2-3 May 2019 |

| Stakeholder Engagement Activity | Target Stakeholder Group | Date / Period |
|---|---|---|
| In-depth interviews | -Headmen (mukhtars) of Kiyikoy town (three neighbourhoods), and Kislacik and Hamidiye villages (5 settlements)<br>-NGOs in Kirklareli, Vize, Kiyikoy and Edirne (9 NGOs)<br>-TurkStream Project representatives | 6-9 May 2019 |
| Focus group meetings | - Local women in Kislacik<br>- Local men in Kislacik<br>- Local beekeepers in Kiyikoy<br>- Kiyikoy WPP employees | 6-9 May 2019 |
| LRP Meetings | | |
| Consultations and negotiations related to acquisition of privately-owned parcels | Shareholders of the privately-owned parcels to be acquired for the Project in Kiyikoy and Kislacik | Since July |

## 6.3 What are Project's Plans for Stakeholder Engagement?

The Project Company will continue engaging with Project's external and internal stakeholders throughout the Project life. A Stakeholder Engagement Plan (SEP) has been prepared by the Project Company in line with EBRD PR1 and PR10. The SEP will be implemented by the Project Company throughout the Project life in order to ensure that PAPs, internal stakeholders (direct and contracted workers of the Project) and other interested stakeholders are provided with relevant, transparent, timely and accessible information so that they have an opportunity to express their views and concerns about the Project and its potential E&S impacts.

As Kiyikoy WPP Capacity Extension Project has been assigned by EBRD as a Category A development, Project's ESIA Disclosure Package will be disclosed to stakeholders in order to provide them with detailed information on the Project activities, impact assessment and planned mitigation measures and collect public comments on the Project and disclosure documents. The disclosure process is anticipated to start in 2019 Q4.

The key information disclosure and stakeholder engagement activities to be conducted as per Project SEP are as follows:

- Electronic copies of the Disclosure Package documents (in Turkish and English) and the national EIA will be disclosed to public on the Project Company website, as well as the EBRD website (http://www.ebrd.com) for the 60 day disclosure period and kept in the public domain throughout the Project life
- Hard copies of the documents comprising the Disclosure Package and the national EIA will also be available at the following locations:
    - BEE HQs in Istanbul
    - BEE office in Ankara
    - The administrative building located at the existing Kiyikoy WPP substation site
    - The headmen offices or other public places (e.g. mosques, teahouses) at the affected villages/ neighbourhoods (Cumhuriyet, Guven and Kale neighbourhoods of Kiyikoy town and Kislacik village)
- Community disclosure meetings will be conducted in Kiyikoy town centre and Kislacik village within three-four weeks following the start of the ESIA disclosure process.
- The Project Company will employ a Community Liaison Officer (CLO) during the construction phase. The CLO will be responsible from leading the stakeholder engagement activities on-site and managing the grievance mechanism.

- The Project Company will continue implementing Project SEP and engaging with all relevant stakeholders by using engagement methods (e.g. periodical community meetings, regular face to face meetings, on-demand meetings, focus group meetings, distribution of technical or non-technical information packages, posting announcements at public places appropriate for the targeted groups, grievance forms, e-mail correspondence, telephone calls, other special engagement methods tailored to specific stakeholder concerns/needs). The frequency of the engagement activities in the post ESIA period is described in the Project SEP.

- Periodical reports on the Project's environmental and social performance will be prepared and submitted to the Lenders (i.e. EBRD) based on periodical monitoring.

## 6.4 Grievance Mechanism

BEE has corporate procedures and guidelines in place for managing public and internal grievances received as part of its investment projects. It has an advanced system supported by corporate portals and databases available for recording and management of grievances, comments, requests and recommendations received from the stakeholders of its projects.

Based on the existing corporate systems, the Project Company has developed a Grievance Mechanism as part of the Project SEP in line with EBRD PR1, PR2 and PR10. The Grievance Mechanism will be activated prior to the start of Project's construction works and kept operational throughout the Project life.

The Grievance Mechanism will be accessible for both public grievances and internal grievances of the Project employees (direct and indirect workers). At the corporate level, Public Relations (PR) Unit Manager is responsible from ensuring effective implementation of the Public Grievance Mechanism by all Project personnel and the corporate Human Resources (HR) Manager will be responsible from the effective implementation of the Internal Grievance Mechanism by the Company, contractors and sub-contractors.

External stakeholders will be provided with the following mechanisms and platforms to convey their grievances, comments, requests and recommendations to the Project management:

- Grievance/comment boxes and forms to be placed at public places including places commonly/comfortably visited by women)
- Verbally during face-to-face meetings/visits to be held by the Project personnel (e.g. site chiefs/managers, CLOs)
- Telephone (the contact numbers that can be used to submit grievances will be shared with the local communities in due course)
- E-mail (the e-mail address for the submittal of grievances/comments will be shared with the local communities in due course)
- Website (the contact number of the CLO will be shared with the local communities in due course)

Internal stakeholders will be provided with the following mechanisms and platforms to convey their grievances, comments, requests and recommendations to the Project management:

- Grievance/comment boxes and forms (Located at the operations building and the construction site of the contractor)
- E-mail
- Telephone
- Petition
- Verbally (directly or through site chiefs/managers, CLOs, corporate HR Manager/Experts)

Contractors/subcontractors will be responsible for providing their personnel with access to the Project Grievance Mechanism.

The objective of the Grievance Mechanism is to ensure acknowledgement, processing and resolution of grievances within maximum 30 days of receipt.

## 6.5 Contact Information for the Stakeholders

| | |
|---|---|
| Project Company website | https://www.alenkaenerji.com.tr/ |
| Borusan EnBW Istanbul Office | Address: Pürtelaş Hasan Efendi Mah. Meclisi-Mebusan Cad.<br><br>No:35/7 Salıpazarı Beyoglu<br><br>Istanbul /Turkiye<br><br>Tel: +90 212 340 27 60 |
| Borusan EnBW Ankara Office | Address: Kızılırmak Mah. 1450.Sok. No:3, Ankara Ticaret Merkezi A Blok Kat: 5 No:31 Çukurambar-Çankaya, Ankara / Türkiye<br><br>Tel: +90 312 447 96 19 |
| Alenka Enerji | Address: Kiyikoy, Vize / Kirklareli<br><br>Tel +90 288 213 15 45<br><br>E-mail: info@alenkaenerji.com<br><br>Contact details of the CLO will further be provided. |