Mersinli Wind Power Plant Project

Non-Technical Summary (NTS)
of Environmental and Social Impact Assessment (ESIA)

March 2018

Quality information

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1. Introduction

Mersinli Wind Power Plant Project (“Mersinli WPP Project” or the “Project”) is planned to be constructed and operated in İzmir Province of Turkey. The Project will consist of 17 horizontal-axis wind turbines (HAWT) that will generate about 180 GWh of net electricity annually to be connected to the national grid, which would provide electricity to approximately 20,000 homes.

The Project was initially owned by Yander Elektrik Müh. Müş. İnş. Tur. ve Tic. A.Ş. (“Yander Elektrik” or the “Project Company”). In May 2017, Alcazar Energy (“AE”) acquired 100% shares of Yander Elektrik and is now developing the Project through the Project Company.

A National Environmental Impact Assessment (EIA) process was followed for the previous layout and capacity of the Project consisting of 22 turbines, which was granted an “EIA Positive Certificate” in 2016. For the current specifications of the Project, an official letter has been issued by the Turkish Ministry of Environment and Urbanization (MoEU) stating that no further studies are required under the Turkish EIA Regulation.

AE is considering financing through the European Bank for Reconstruction and Development (EBRD) and Société de Promotion et de Participation pour la Coopération Economique S.A. (Proparco), both International Finance Institutions (IFIs) for the development of the Project. Mersinli WPP Project has been classified as a “Category A” Project, based on the international Environmental and Social categorization approach and criteria of the World Bank, International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD).

In line with the Environmental and Social (E&S) Policy and related Performance Requirements (2014) of EBRD, and IFC Performance Standards (2012), as well as general and sector-specific guidelines, a project of this category and scale requires preparation of a fit-for purpose Environmental and Social Impact Assessment (ESIA) Disclosure Package. The ESIA Disclosure Package for the Project consists of the following documents:

- ESIA Report (including the Environmental and Social Management and Monitoring Plan (ESMMP))
- The present Non-Technical Summary (NTS);
- Stakeholder Engagement Plan (SEP);
- Livelihood Restoration and Compensation Framework (LRCF);
- Contractor Management Framework Plan;
- Erosion Control, Soil and Spoil Management Plan;
- Noise Management Plan;
- Air Quality Management Plan; and
- Waste Management Plan;
- Environmental and Social Action Plan.

The national EIA Report will also be disclosed as part of the disclosure package.

1.1 What is Mersinli Wind Power Plant Project?

Mersinli Wind Power Plant Project (“Mersinli WPP Project” or the “Project”), is an renewable energy generation project, planned to consist of a total of 17 wind turbines each with a capacity of 3.45 MWm, summing up to a total capacity of 58.65 MWm/55 MWe, in İzmir Province of Turkey, within Kemalpaşa, Torbalı and Bayındır district borders (see Figure 1–1). The key specifications of the Project are summarized in Table 1–1.

Table 1–1. Key Project Specifications

Information	Explanation/Description
Number of turbines	17
Turbine type	Vestas V126
Turbine capacity	3.45 MW
Total installed capacity of the WPP	58.7 MWm/55 MWe
Annual net electricity generation	Approx.180 GWh
Electricity Transmission Line (ETL) connection	40-200 m line (A new ETL is not required, only one new lattice tower will be erected under the existing ETL)

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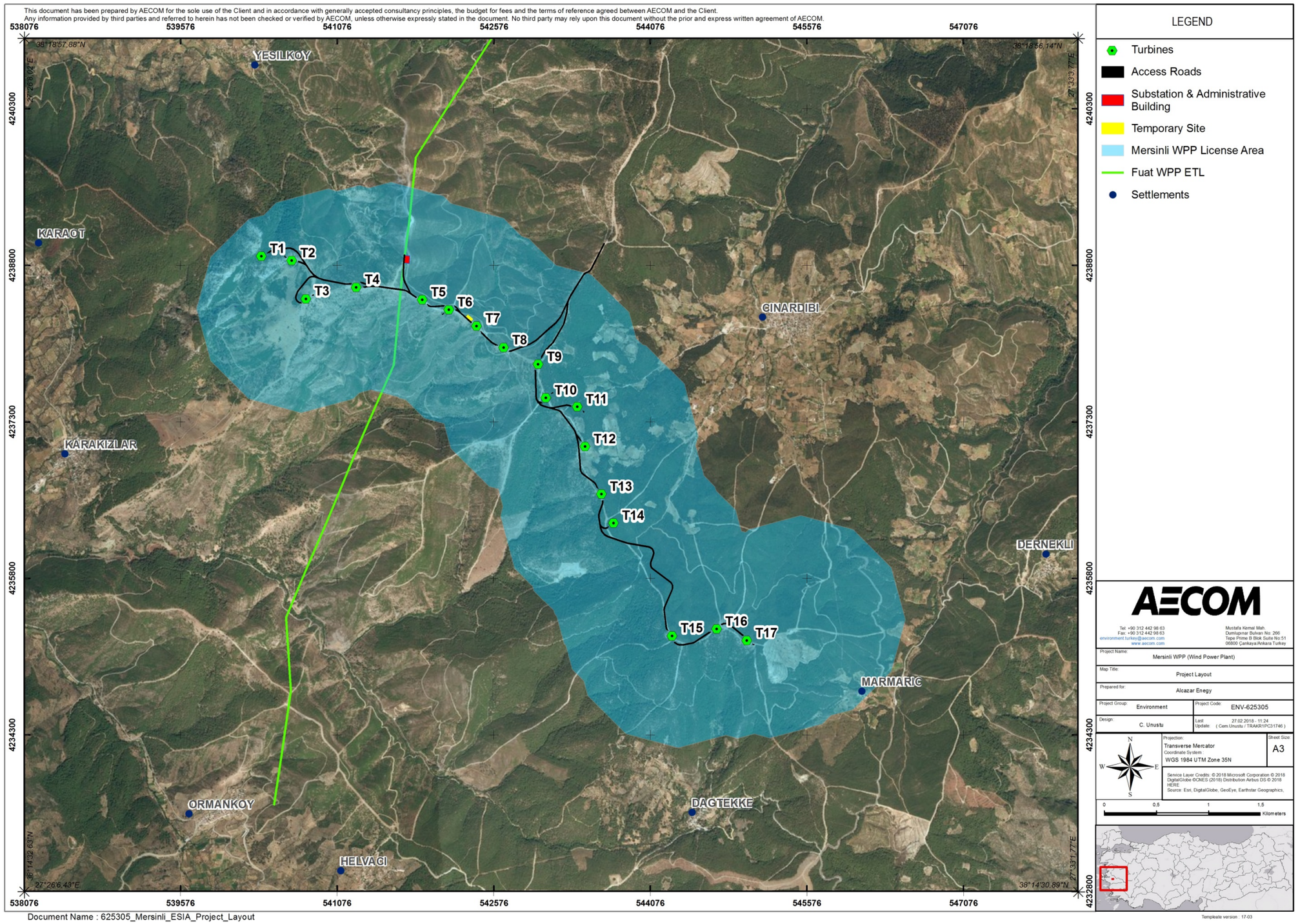


Figure 1–1. Project Layout

1.2 Who is developing the Project?

Alcazar Energy (“AE”) is an independent developer and power producer focused on mid-market renewable energy generation across the Middle East, Turkey and Africa (META) region. AE was formed in early 2014 and is positioned to capitalise on the region’s shift towards renewable energy as it has become a competitive source of power generation below grid parity.

1.3 Where is the Project located?

The Project is located within administrative borders of Kemalpaşa, Torbalı and Bayındır districts of İzmir Province, falling within localities of Çardaklı Tepe, Kartal Tepe, Mersinli (Marmariç), Karlık Tepe and Akçam Tepe. İzmir City Centre is located at a distance of about 35 km (air distance) from the Project License Area, which covers an area of 1,620 hectares (see Figure 1–1).

The site is generally mountainous, with a complex terrain and elevations ranging between 462 m and 953 m within the Project License Area. The main ridge, where turbines are distributed on, lies in a general north-west/south-east direction for approximately 6 km. The License Area consists mainly of lands registered as forest, while private parcels used for agriculture are also located within the License Area. The total area to be affected by the Project, including turbine foundations, substation, access roads and construction camp site, covers approximately 31 hectares, which corresponds to 2% of the License Area.

The closest settlement to a turbine is the Mersinli locality of Dernekli neighbourhood, located at a distance of about 1 km to the southeast of Turbine 17. Other settlements close to the turbine locations are provided in Table 1–2.

Table 1–2. Settlements Closest to the Project Turbines

Settlement	District	Closest Turbine (WTG) to the Settlement	Approximate (Air) Distance of the Settlement to the Closest Turbine (km)	Direction of Settlement with respect to Turbine	Population
Mersinli Locality of Dernekli neighbourhood*	Bayındır	WTG 17	1.0	South-east	14**
Dağtekke neighbourhood	Torbalı	WTG 16	1.6	South	169
Yeşilköy neighbourhood	Kemalpaşa	WTG 01	1.9	North	167
Çınardibi neighbourhood	Bayındır	WTG 11	1.9	North-east	822
Cumalı neighbourhood	Kemalpaşa	WTG 01	2.1	North	212
Karaot neighbourhood	Torbalı	WTG 01	2.1	West	282
Karakızlar neighbourhood	Torbalı	WTG 03	2.5	South-west	395
Dernekli neighbourhood	Bayındır	WTG 17	2.8	North-east	166
Gökyaka neighbourhood	Kemalpaşa	WTG 02	3.4	North	95
Dereköy neighbourhood	Kemalpaşa	WTG 02	4.7	North	458

**Referred to as Marmariç Permaculture Village by the residents of the settlement.*

***According to the information provided by the residents of Marmariç Permaculture Village.*

2. Project Rationale

2.1 Why is the Project needed?

Mersinli WPP Project is needed to meet the growing renewable energy demand in Turkey. The Project will be developed in line with the Turkish Energy Policy, focusing on use of domestic resources, as well as the strategic goals set by the National Renewable Energy Action Plan as; increasing the share of renewable energy within the general energy consumption to 20% by 2023, and reaching 20,000 MW of installed capacity in wind power.

2.2 Which standards apply to the Project?

Mersinli WPP Project will be developed in line with the Turkish legislation, as well as the European and international environmental and social standards and guidelines. Accordingly, the Project Company will comply with the following standards:

- National legislation applicable to the management of environmental, social, labour and energy generation aspects of the Project (including the Environmental Impact Assessment (EIA) Regulation),
- EBRD Environmental and Social Policy and Performance Requirements (2014),
- IFC Performance Standards, and Environmental Health and Safety Guidelines (2012),
- Equator Principles III,
- EU Environmental Legislation,
- International Conventions and Protocols, and
- The Project Company's Environmental and Social Sustainability, Health and Safety, and Human Resources policies.

2.3 What has been done according to the Turkish EIA Regulation?

Mersinli WPP Project was initially planned to consist of 22 wind turbines, each with a capacity of 2.5 MWm, adding up to a total capacity of 55 MWm/55We. Further follow-up studies and analysis of alternatives have changed the Project layout to 17 turbines with with an installed capacity of 58.65 MWm/55MWe under the current ownership.

A national EIA Process had been completed in line with the Turkish EIA Regulation for the initial 22-turbine-layout, which was granted an "EIA Positive Certificate" by the MoEU on July 28, 2016. The Project Company also applied to the Ministry with the Project's current layout and capacity, in order to confirm validity of the "EIA Positive Certificate". The letter issued by the Ministry as a response to the Project Company's application on November 1, 2017 states that since the 3.65 MW-change in turbine capacity is below the threshold level specified in the EIA Regulation, no further procedure is required. Likewise, as the current turbine locations are still within the same impact area (License Area), changes that had been made to the previous coordinates of the turbine locations are considered as appropriate.

2.4 What is the Environmental and Social Impact Assessment (ESIA) Process?

In line with international standards and Good International Industry Practices (GIIP), Mersinli WPP Project ESIA Process has been undertaken to cover main approaches and key issues, as well as the legislative framework, environmental baseline studies, consideration of alternatives, impact assessment of significant environmental and social impacts, mitigation measures to be implemented in order to avoid and/or minimize potential impacts of the Project, as well as the environmental and social management system (ESMS). The overall goal is to ensure that throughout the different phases of the Project, including design, construction and operation, all project-related activities are conducted in a manner to minimize identified potential impacts and maximize potential benefits in terms of the environment and potentially affected communities.

The ESIA process and methodology that has led to preparation of the ESIA Report is structured around a systematic approach, which takes all of the processes included in the realization of the Project into consideration; including development of the Project, construction of each facility, followed by on-site operations. It is also worth

noting that the entire ESIA process involves a number of parties, who might take different responsibilities at any stage depending on the Project requirements, as well as impacts and mitigation strategies. These parties include but may not be limited to the Project developer, third party consultants, relevant government authorities, financial institutions, communities, NGOs and any other interested group.

2.5 Who has undertaken the ESIA Process?

The entire ESIA Process has been undertaken by AECOM Turkey, including each item in the ESIA Disclosure Package in line with the EBRD Performance Requirements, IFC Performance Standards, and Environmental and Health and Safety Guidelines, as well as other applicable national and international standards. The national EIA Report had previously been prepared by a local consultant (PROÇED Çevre Danışmanlığı Mühendislik İnşaat Sanayi Ticaret Ltd. Şti.) in 2016, who is authorized in conducting the national EIA process in line with the Turkish EIA Regulation and other related legislation.

2.6 What alternatives were considered?

The Law on the Utilization of Renewable Energy Sources for the purpose of generating energy, (Law No. 5346 of 10/05/2005) is the first Renewable Energy Law of Turkey, which was approved by the Turkish Parliament. To discern between the overlapping applications that applied for the same substation capacity or location and develop a connection request management mechanism, a regulatory framework has been developed allowing the Turkish Electricity Distribution Company (TEİAŞ) to organize tenders (competitions) to identify which of the projects that applied for a license will be awarded a license and capacity for the project in question. Mersinli WPP Project went through this process as part of the 7th Competition Package that was held in June 2011, and was awarded a 55 MW of connection capacity to Aslanlar Transformation Centre. Proposed as a more feasible alternative itself to a previously proposed layout and capacity, several project alternatives were also considered for Mersinli WPP Project, which can be listed under the following main groups of alternatives (see Table 2–1):

Table 2–1. Project Alternatives

Energy Generation Alternatives	Technology (Turbine) Alternatives	Site and Layout Alternatives
While each energy generation alternative has its own advantages and challenges with respect to construction and operation aspects, including the cost, availability, and flexibility, as well as management of environmental and social impacts, wind energy stands as a reliable and sustainable domestic source of energy, which provides a viable option to meet Turkey's growing energy demand.	Of the two main types of turbines currently being used in WPP developments, namely; horizontal axis wind turbine (HAWT) and vertical axis wind turbines (VAWT), HAWTs are more extensively used in large scale WPPs due to their advantages in terms of energy generation capacity, efficiency, tower height, pitch blade capacity, etc.	The initial Project layout was changed to include 17 turbines as opposed to 22, in a manner to optimize energy output and minimize land take, earth works and material requirements, visual impacts, and traffic movements. The layout was finalized also to avoid impacts on private lands used for agricultural purposes.
Energy Assessments	**ETL Alternatives**	**No Alternative**
An energy assessment analysis was conducted to compare different operational configurations, which concluded that the most viable option is the Vestas 126-3.45 MW turbine model with 180 GWh of annual energy output and 34.8% of net capacity factor.	Initial energy transmission line (ETL) consideration was also revised to decrease the total length of the ETL to 40-200 meters, which would be connected to the existing ETL of the previously realized Fuat WPP. Consideration of ETL alternatives and the revisions resulted in minimization of related impacts like loss of habitats, biodiversity impacts, electrocution risk, and associated costs.	Assuming that the Project will not be realized, would entail that 180 GWh of annual energy is provided by other sources whose management would require additional measures. Mersinli WPP Project is expected to incur national benefits through the payment of royalties, as well as providing direct employment to 150 people. The Project will also contribute to decreasing the annual carbon intensity of the country by saving an estimated amount of 100,000 tonnes of CO_2 annually.

2.7 What are permits and licenses required for the Project implementation?

The Project Company currently holds the Energy Generation License, which was granted by the Energy Market Regulation Authority on 5 July 2012. Other permits and licenses required for the implementation of Mersinli WPP Project are provided in Table 2–2.

Table 2–2. Mersinli WPP Project Permits, Licenses and Approvals

Permit	Related Authority/Entity	Status/Remarks
Energy Generation License	Energy Market Regulation Authority	Obtained on 5 July 2012; The license covers 49 years of energy generation. The Project Company obtained a revised license for the current turbine layout on 5 January 2018.
EIA Positive Certificate for the WPP	Ministry of Environment and Urbanization	Obtained on 18 July 2016; Confirmation of validity of the existing EIA Positive Certificate for the current layout has been obtained on 1 November 2017
ETL Connection and System Use Approval	Turkish Electricity Transmission Company	To be signed during the course of further development (connection agreement) and before preliminary acceptance of the power plant (system usage agreement)
Forestry Final Permit	Ministry of Forestry and Water Affairs, General Directorate of Forestry	To be obtained prior to start of construction
Zoning Plan Approval	Ministry of Environment and Urbanization	To be obtained prior to start of construction
Preliminary and Final Design Approval	Ministry of Energy and Natural Resources	To be obtained prior to start of construction
Building Permit	Metropolitan Municipality of Izmir	To be obtained prior to start of construction
Waste Disposal Agreements	Municipality/Licensed Disposal Firms	To be signed early construction phase
Wastewater Disposal Agreement	Municipality	To be signed early construction phase
Temporary Acceptance	Ministry of Energy and Natural Resources	To be obtained prior to operation phase
Workplace Opening and Operating Permit	Municipality/Governorate	To be obtained prior to operation phase
Waste Management Plan Approval	Provincial Directorate of Environment and Urbanization	To be obtained early operation phase

3. Project Description

3.1 What are the main components of the Mersinli WPP Project?

The main components of Mersinli WPP Project consist of 17 wind turbines (HAWT), an underground cable network, a substation, access roads, administrative buildings, as well as temporary facilities and sites. Those can be summarized as the following:

Wind Turbines

The working principle of a wind turbine is capturing a percentage of the kinetic energy of wind by spinning rotors and thus converting it to mechanical energy and finally converting the mechanical energy to electrical energy via a generator. Therefore, cost effective conversion of kinetic wind energy to electrical energy is the aim of any wind turbine design.

Main components of a modern (HAWT) are presented in the illustration in Figure 3–1. The three-blade-upwind rotor seen in the figure prevents the turbine from blocking the wind and is designed to decrease aerodynamic noise. These blades are attached to a hub, a main shaft and optionally a gearbox to adjust the revolutions per minute (RPM) to the turbine's generator operating levels. The containment component of the turbine, namely the nacelle, houses the shaft, the gearbox, the generator, transformer, switchgear and the control system. The Nacelle is mounted on a steel, cylindrical tower with a height predetermined based on wind assessments conducted for a specific site (IPCC, 2011; IFC, 2015).

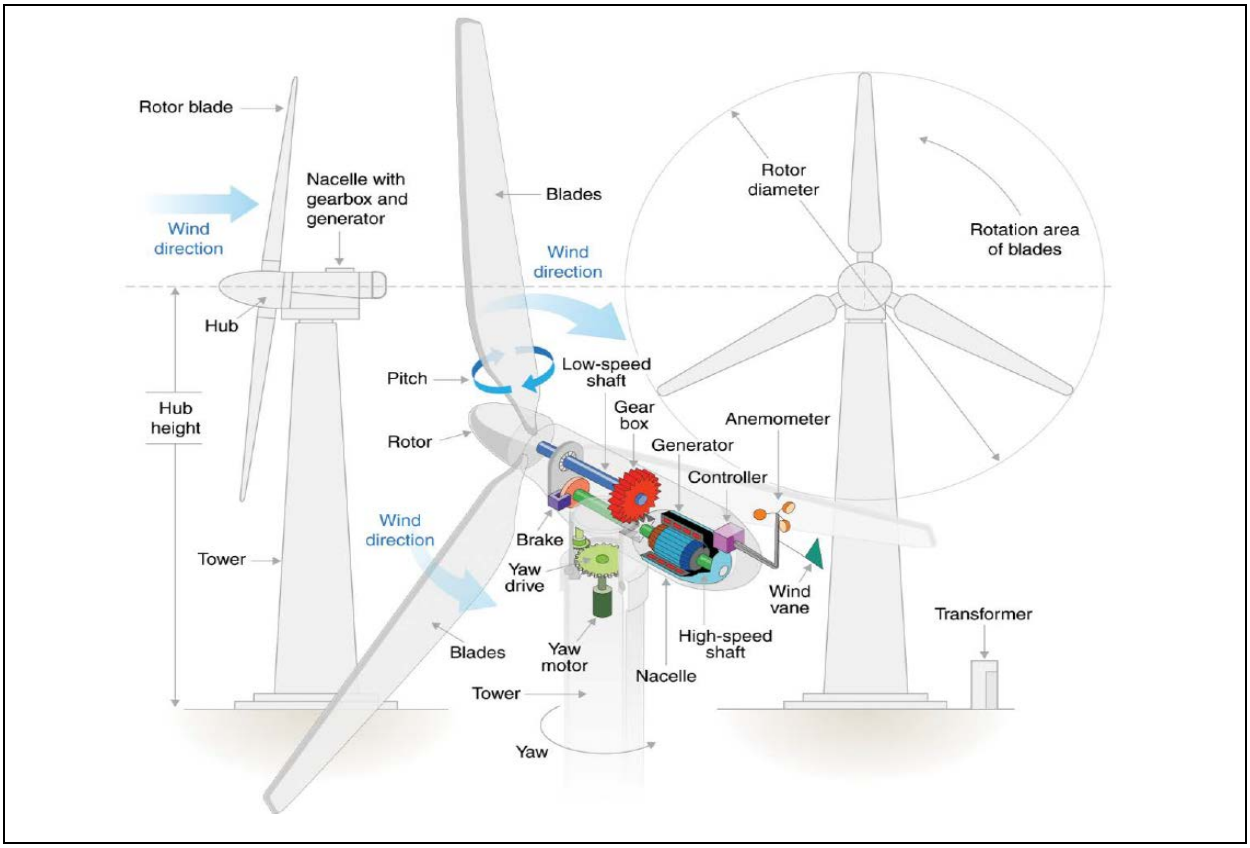


Figure 3–1. Horizontal Wind Axis Turbine Components (*US Department of Energy, Argonne National Laboratory, 2010*)

For Mersinli WPP Project, the Project Company selected V126-3.45 MW turbines, a model specifically designed to operate on medium wind sites by Vestas Wind Systems A/S. The hub height for all of the turbines will be 87 m. The turbine model selected has noise isolation and ability to decrease load, control rotation, optimize voltage and regulate power. Transformers will be inside the turbines.

Access Roads

Internal access roads to be built within the scope of Mersinli WPP Project will provide access between the turbines and the substation. The current design suggests that the total length of access roads will be 11.7 km. Only 5.2 km of this total will be new roads. The remaining roads will consist of existing forest roads, which are planned to be improved to the road standards required by the Project. The road design will be finalized prior to the onset of construction based on further surveys to be conducted.

Underground Cable Network

Energy generated by the wind turbines will be relayed to the substation via an underground cable network, which will be a 33-kV-MW- collector system that will include four circuits. The 33-kV-alumunium underground cables of an approximate length of 50.7 km will be placed in trenches, which will be excavated parallel to the site access roads to avoid any further disturbance. The only exceptions are Turbine 8 and Turbine 9, which will use the fire breaker route due to topographical constraints.

The underground cables will be directly buried in 80 cm depth trenches, except in the road crossings where they will be laid inside 150 mm diameter pipes installed at 1 meter of depth and protected by concrete. Number of cables (3 per circuit) to be put in trenches will change at different turbine locations, resulting in changing trench widths, ranging between 350 mm and 1,100 mm (550 mm to 1,300 mm at road crossings).

Substation

Mersinli WPP Project substation will be located adjacent to the existing Energy Transmission Line (ETL) of Fuat WPP at the eastern direction (see Figure 3–2). A high voltage switchyard will operate to adjust voltage level of the energy generated at the WPP, before establishing the connection to the national grid. There will also be a control centre, including necessary supervisory control and data acquisition (SCADA) systems, telecommunication cabinets, as well as closed-circuit television (CCTV), which will allow real time monitoring, optimisation and management of the WPP.

Figure 3–2. Mersinli WPP Project Substation and ETL Connection

Temporary Construction Facilities

A Construction Camp site will be located between the Turbine-6 and Turbine-7, which will accommodate the turbine supplier's and the construction contractor's site, will function as a general mobilisation site for construction and will be removed upon completion of construction activities. Top soil to be stripped from the footprint of the permanent Project units will be stored at designated top soil storage areas, which will only be utilized during the construction, for topsoil to be reused during restoration and rehabilitation of land.

3.2 How will access to Mersinli WPP site be provided?

Main access to the Mersinli WPP site will be provided by using Fuat WPP's existing access road. This stabilised road is around 12 km and was built for the construction and maintenance of the Fuat WPP. The road will be well-maintained and/or improved based on results of the further surveys to be conducted prior to the start of construction phase. Main entrance of the Mersinli WPP site will be on the main access road around 1.2 km north of Turbine-9.

3.3 Does the Project involve construction of a new energy transmission line?

The high voltage ETL (154 kV) of the existing Fuat WPP, which is operating in the north/north-east of the License Area, is crossing the License Area between Turbine-4 and Turbine-5. As a result of the optimised design, the Mersinli WPP Project will not include construction and operation of a new ETL and the grid connection of the power plant will be provided by a 40-200 m line that will connect to the existing ETL of the Fuat WPP. To establish this connection, a new ETL pylon will be by the Project Company at the western side of the substation. The final design of the connection will be subject to approval of TEİAŞ as owner of the ETL.

3.4 What are the main Project activities?

Land preparation and construction activities are planned to be completed within 16 months including commissioning. Turbine components, including turbine towers, blades, hubs and nacelles will be transported to and stored at the site. Project activities to be conducted during the land preparation and construction phase of the Project are listed below.

Project activities to be conducted during the land preparation and construction can be listed as the following:

- *Site preparation*
- *Construction of access roads and internal roads*
- *Excavation activities for turbine tower foundations*
- *Preparation of crane pads at each wind turbine location*
- *Transportation of the anchor cages*
- *Construction of turbine/tower foundations*
- *Transportation of turbine components*
- *On site assembly of the turbines*
- *Construction of the substation*
- *Electrical works and installation of the control system*
- *Connection to the system, testing and commissioning*
- *Site re-instatement and restoration*

In line with the Energy Generation License provided by the Energy Market Regulatory Authority (EMRA) the Project is licensed to generate electricity by using wind energy for 49 years starting from the date the License was issued (5 July 2012). The design lifetime of the wind turbines is at least 20 years, but in practice turbines may last longer with proper maintenance.

3.5 What is the Project schedule?

Land preparation and construction activities are planned to be completed within 16 months including commissioning. The Project schedule for the construction phase based on tasks to be completed within the scope of the Project specifications is provided in Figure 3–3.

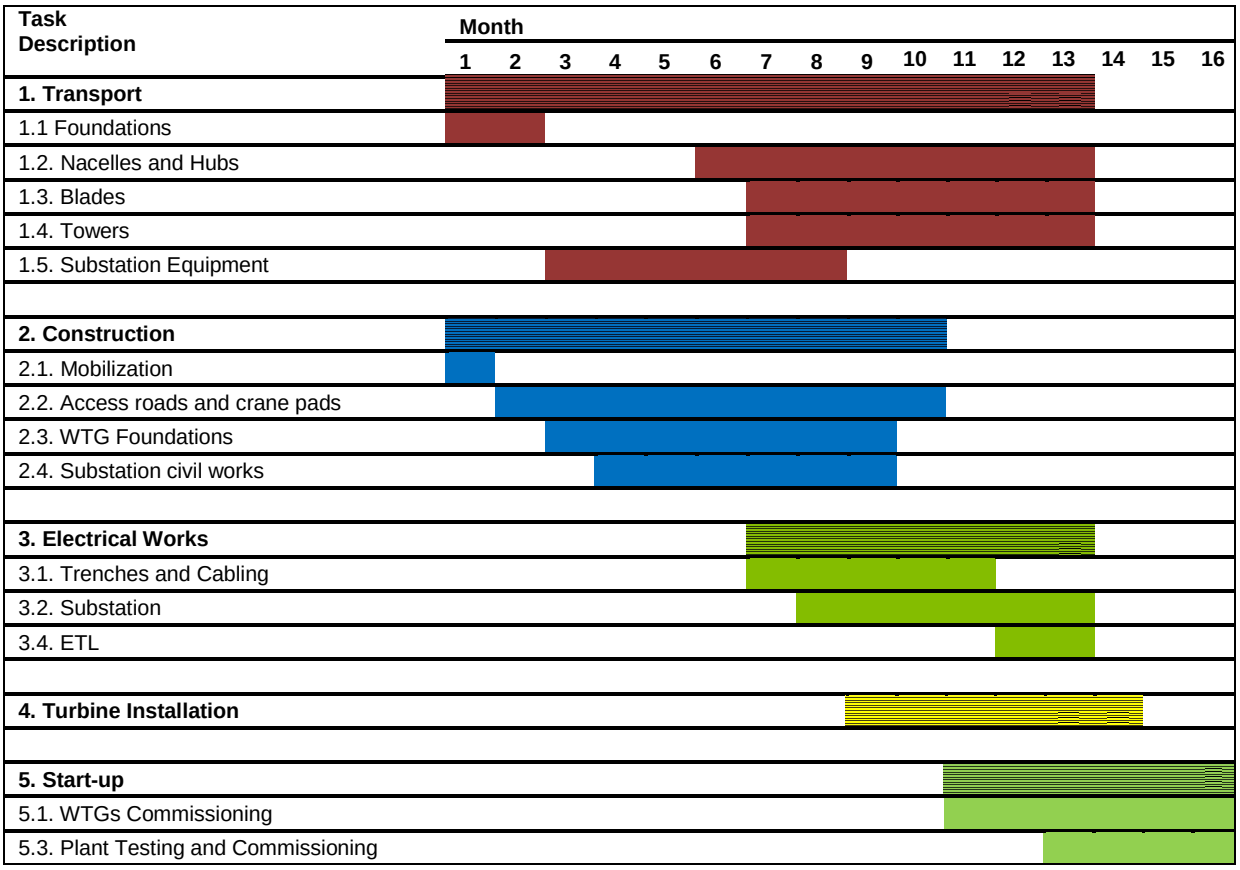


Figure 3–3. Project Construction Schedule

4. Stakeholder Engagement

4.1 Who takes an interest in the Project?

In line with international standards and its own Environmental and Social Sustainability Policy, the Project Company is committed to communicate openly about all of the Project-related activities with its employees, communities, as well as governmental and non-governmental organisations. A separate Stakeholder Engagement Plan (SEP) has been prepared for the Project, in addition to the assessments made within the ESIA Report, which will guide the Project Company towards implementing a structured stakeholder engagement and consultation process through different stages of the Project. The SEP identifies stakeholder as any individual, organisation or group that would potentially be impacted by the Project or that has an interest in the Project and its impacts. Accordingly, the key stakeholders for Mersinli WPP Project were identified as identified in Table 4–1.

Table 4–1. Stakeholder Groups and Key Affected Parties

External Stakeholders	
National / Local Government Organisations	Other WPPs
Non-Governmental Organisations	Public Economic Enterprises
Local Communities / Residents	Universities
Local Businesses	Media
Stakeholder Groups	Lenders
Internal Stakeholders	
Company Shareholders and Employees	Contractors / Sub-contractors and their Employees

4.2 What interactions have been established with interested parties?

Stakeholder engagement process for Mersinli WPP Project started as early as 2015, and is still going on through various activities that cover different topics through participation of a wide array of interested parties. Stakeholder engagement activities that had been conducted until December 2017 are summarized in Table 4–2.

Table 4–2. Stakeholder Engagement Activities Conducted as of December 2017

Process	Type of Activity	Stakeholders Consulted	Date
National EIA Process	Public Participation Meeting	Çınardibi neighbourhood	24 August 2015
	Correspondences with Government Authorities	Ministry of Environment and Urbanisation Ministry of Energy and Natural Resources Ministry of Transport, Maritime and Communication Ministry of Culture and Tourism İzmir Provincial Directorate of Environment and Urbanisation General Directorate of Forestry, İzmir Regional Directorate İzmir Greater Municipality Bayındır Municipality Kemalpaşa Municipality Torbalı Municipality Ministry of Culture and Tourism Ministry of Forestry and Water Affairs Ministry of National Defence İzmir Provincial Directorate of Food, Agriculture and Livestock	2014-2015
ESIA Process	Public Consultation Meeting in Cumalı Neighbourhood	Local communities (Cumalı and Yeşilköy)	4 October 2017
	Meetings with Local Communities	Marmariç Permaculture Village Community	13 July 2017 28 July 2017 3 October 2017
	Consultations with Key Informants	Headmen of Cumalı, Çınardibi, Dağtekke, Dernekli, Dereköy, Gökyaka, Helvacı, Karakızlar, Karaot, Ormanköy, and Yeşilköy neighbourhoods.	October 2017

Process	Type of Activity	Stakeholders Consulted	Date
	Consultations with Project Affected Persons	Persons using the registered forest lands corresponding to turbine locations and their vicinity for agricultural purposes	3 October 2017
	Consultation with Government Authorities	Izmir General Directorate of National Estate Kemalpasa District Directorate of Food, Agriculture and Livestock Bayindir District Directorate of Agriculture Bayindir Forest Sub-district Directorate	20-22 December 2017
	NGOs	Izmir Beekeepers Association	22 December 2017
	Consultations with Project Affected Persons	Persons using the registered forest lands corresponding to turbine locations and their vicinity for agricultural purposes	20-22 December 2017
	Consultations with Key Informants	Headmen of Çınardibi and Dağtekke neighbourhoods	20 December 2017

4.3 How can people participate in the Stakeholder Engagement Process?

The ESIA Disclosure Package will be disclosed and remain in the public domain during the course of the Project, as will the SEP, which will be updated periodically. As well as electronic documents, hard copies will also be made available at the related municipalities, the Project's site office and at headmen offices of Cumalı and Çınardibi neighbourhoods. Regular meetings will be conducted with the headmen and community representatives to inform them about the Project development accurately. A Community Liaison Officer (CLO) has already been appointed by the Project Company in November 2017, who will play a key role in maintaining relations with the local communities and other relevant local stakeholders including governmental authorities, etc.

Before the start of land preparation and construction activities, the following specific activities will be conducted, which will be open to all stakeholders to attend and raise any comments and concerns focus group meetings with women in selected neighbourhoods, and additional interviews will be held to identify all vulnerable and disadvantageous groups. In addition, Disclosure Meeting(s) will be conducted at Çınardibi and/or Cumali neighbourhoods within the ESIA disclosure period, where key findings of the ESIA Process will be presented to the participants to inform them and receive their opinions and/or concerns related to the Project.

To engage with the internal stakeholders, including direct employees of the Project Company and the contracted workers, regular meetings with the staff to provide them with a platform where they can be informed and also raise any issues they might have related to the Project and their working conditions. A Grievance Procedure will be implemented both for external and internal stakeholders and information regarding the channels that can be used to lodge grievances will be provided in all nearby settlements, as well as the Project Company website. A formal procedure will take effect once any form of information/communication is provided by an external complainant and will be managed by the CLO. Internal grievances will be managed by the HR Department of the Project Company.

The projected timetable for further stakeholder engagement activities is presented in Table 4–3.

Table 4–3. Timetable for Future Stakeholder Engagement Activities

Activity	Time
Establishment of the Grievance Mechanism	2018 Q1
Dissemination of hard copies of the ESIA Report, NTS and SEP	2018 Q1
Meetings with Headmen before construction activities are commenced	2018 Q1
Announcement at local gazette, dissemination of information	2018 Q1

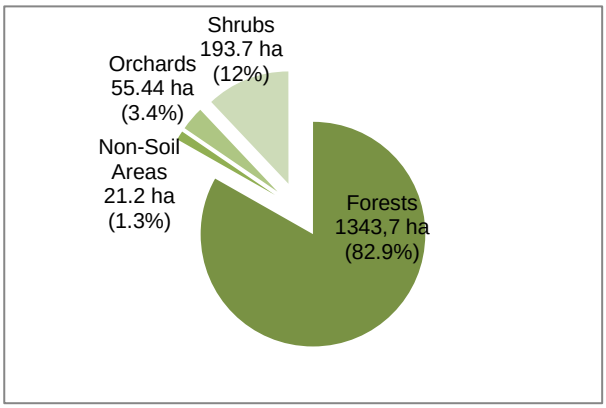
5. Potential Environmental and Social Impacts & Mitigation

5.1 What is the methodology for environmental and social impact assessment?

Environmental and social impacts of Mersinli WPP Project have been assessed based on methodologies described in a number of internationally recognized guidelines and best practices, the most significant of which include publications of various UK Government offices, and the Scottish Natural Heritage's Handbook on Environmental Impact Assessment. The principle method applied for the Project is prediction of impacts by using quantitative data to the most possible extent, and where not applicable, qualitative methods to assign a degree of significance to each impact based on professional judgment.

Significance of environmental and social impacts has been defined as a function of the sensitivity/value/importance of the receptor/resource and the overall magnitude of the Project's impact on that receptor/resource. Sensitivity/value/importance of the receptor/resources is determined based on the baseline information available for the Project in consideration of public interest, designations, legal requirements, acceptability, sustainability, etc. The overall magnitude of impact, on the other hand, represents the degree of change and is influenced by a number of different factors, which can be categorized as; geographical extent (wide, local or restricted), magnitude (high, medium or low, reversibility (long term reversible, short term reversible or irreversible), duration (long term, middle term or short term), and frequency (continuous, intermittent or one-off).

5.2 How will the Project impact land use, soil and geological conditions at the License Area, and how these impacts will be mitigated?



The main land use types at the Project License Area are forests, non-soil areas, orchards and shrubs according to the Turkish General Directorate for Rural Services (GDRS). The Project will result in land use changes at the License Area, including forests and shrubs, due to construction of turbine foundations, access roads, substation, etc., impacts of which will continue through the operation phase as well. There are no additional impacts expected to be incurred during the operation phase of the Project on land use characteristics. The total area to be impacted is 31 ha, which corresponds to 2% of the entire License Area. Although registered as forest land, two parcels corresponding to the location of Turbine-12 and part of its access roads have been used for cherry plantation without any permit obtained from the authorities.

In terms of soil characteristics at the Project License Area, majority of soils are classified as Non-Calcareous Brown Soil with an 82.5% coverage, which is followed by Brown Forest Soil with 15% coverage at the northwest. According to the Turkish GRDS land use capability classes, majority of the License Area is covered by Class VII soils (94.4%). The remaining soils are of Class VI (3.9%) and Class VIII (1.55), indicating that these soils are not suitable for cultivation. Due to its steep topography, majority of the License Area is categorized to have a severe erosion (4th degree) potential. The Project License Area is also located on a 1st degree earthquake zone according to the Earthquake Map of Turkey. Thus, the seismic design and stability of the wind turbines, is essential to avoid risks on the community and personnel's health and safety, as well as the integrity of the Project. The seismic design of the Project will be done by applying the results of the final soil surveys.

Soil management measures will be implemented during the construction phase of the Project to minimize impacts on topsoil, risk of soil disturbance and erosion, as well as soil contamination due to unexpected accidents. Related management plans and programs; Biodiversity Action Plan, Reforestation Programme, Livelihood Restoration and Compensation Framework, will be in place to ensure all necessary actions are taken to mitigate and compensate for impacts on soils and forest land, as well as livelihoods due to Project-related activities and changes in land use.

5.3 What are potential impacts on noise receptors and mitigation measures?

Noise to be generated during the land preparation and construction, and operation phases of the Project will have potential impacts on noise sensitive receptors at the closest settlements to the Project License Area, as well as the Project personnel. The Project standards for noise have been set in accordance with limit values set by the Turkish Regulation on the Assessment and Management of Environmental Noise (RAMEN) and IFC General EHS Guidelines. In order to make an assessment of potential impacts of the Project on these receptors, first, background noise levels were measured at two selected noise sensitive receptors, which are the closest residential buildings located in Çınardibi neighbourhood and Marmariç Permaculture Village.

During the land preparation and construction phase of the Project, machinery and equipment to be used for construction of access roads and crane pads, preparation of turbine foundations and other civil works, are the potential noise generators. Based on a worst-case scenario assuming all machinery/equipment work at the same time, at a single location with maximum sound levels, cumulative noise to be generated by all noise sources was calculated. Taking the background noise levels into consideration, environmental noise at the closest receptors would be well below the Project standards. It should be noted that, although the calculations are based on a worst-case scenario, construction activities will be conducted gradually for each turbine over the duration of 16 months. Yet in order to manage noise impact and prevent any further disturbance, construction activities near to the closest residential areas (e.g. Marmaric near Turbine-17) will be limited to daytime, receptors will be informed of the related schedule, machinery will not be operated all at the same time and equipment with lower sound levels will be opted for. Noise levels will be monitored and the grievance mechanism will be in place to take corrective measures wherever necessary.

Noise to be generated during the operation phase of the Project will mostly depend on the wind speed. Sources of noise at this stage are mechanical and aerodynamic sounds. Due to advanced design techniques, mechanical sounds from wind turbines have been reduced significantly. To limit the aerodynamic noise, rotor speeds of large turbines are restricted. A noise model was run to assess potential impacts during operation over a wind speed range for the License Area. Accordingly, projected noise levels during operation are also below the daytime limits of the Project that are in line with the Turkish RAMEN and the IFC, during both day and night. Mitigation measures will still be in place during the operation phase of the Project. Through optimising turbine operation according to the wind speed, keeping turbines in good running order, limiting vegetation clearance, implementing the SEP and conducting noise monitoring, noise impacts on receptors will be managed effectively throughout the Project life-cycle.

5.4 How will air quality be impacted and what measures will be taken?

Impacts of Mersinli WPP Project on air quality during land preparation and construction, and operation phases of the Project has been assessed in line with the relevant Turkish regulation, as well as the IFC and EU guidelines providing the limit values. Land preparation and construction phase impacts on air quality would include PM10 emissions from construction machinery to be used for various activities, as well as exhaust emissions of PM10, NOx, CO, SO2 and TOC. Impacts on air quality are expected to affect nearby settlements, as well as beekeeping and agricultural activities conducted near the turbines. Based on the Project specifications regarding excavation and filling activities, dust emissions from construction activities, and exhaust emissions from construction machinery and equipment were estimated and compared to limit values provided by the Turkish Industrial Air Pollution Control Regulation. Mersinli WPP Project is not expected to exceed limit values for PM10 or exhaust gases, thus will not have significant adverse impacts on air quality. As a renewable energy source, wind power plants do not rely on use of fossil fuels. There will not be any combustion or heating-related emissions during the operation of Mersinli WPP. The only source of emissions is the diesel generator, which will only be used in case of a blackout, so its impacts can be considered as negligible. Consequently, Mersinli WPP operation is not anticipated to have any adverse impacts on air quality. All necessary measures will be in place to reduce and control air emissions including; dust suppression, speed limitation, maintenance of machinery and vehicles, and regular monitoring, as well as implementation of the grievance mechanism.

5.5 Will the Project contribute to greenhouse gas (GHG) emissions?

Renewable energy developments are assumed to displace emissions associated with other electricity generation resources on the grid. With an annual energy generation of 180,000 MWh, the Project's contribution to displacement of emissions associated with other sources on the Turkish grid is calculated as 87,480 tCO_2e/annum. As a renewable energy project, the Project does not make a substantial contribution to GHG emissions during the operation phase, but rather emissions are considered to be also negative, displacing emissions that would otherwise be generated by other technologies.

5.6 Will the Project impact any water resources and how potential impacts will be mitigated?

The Project License Area is located on the boundary of Küçük Menderes (to the south) and Gediz (to the north) river catchments. According to information acquired from the State Hydraulic Works, one dam (Burgaz Dam) and four water ponds (Aslanlar, Savanda, Bağyurdu and Karakızlar ponds) within the vicinity of the Project License area were identified to be in operation, the closest of which is Karakızlar Pond at a distance of 2.8 km. With reference to the Project's national EIA Report and national Law (No. 7269) no flood plains or flooding risks were identified at the License Area. Several drinking groundwater resources are officially reported for Torbalı and Bayındır districts, which are the nearest major water users to the License Area.

Water will be used for drinking and utility purposes by the Project personnel during the land preparation and construction phase, in addition to dust suppression. None of the surface or groundwater resources will be used for on-site water requirements during the construction and operation phases of the Project. Thus, there will be no Project-related impacts on water resources due to on-site water consumption. All related mitigation measures will be implemented to prevent contamination of surface and groundwater resources due to surface runoff from transport of hazardous materials to be used, and also to prevent pollution and impact on downstream water bodies.

5.7 What will happen to the wastewater?

Wastewater will be generated during land preparation and construction activities from: construction sites and accommodation/welfare facilities as a result of utility water use. In accordance with the Turkish Water Pollution Control Regulation, wastewater generated during the construction phase will be treated by a package wastewater treatment plant and discharged in compliance with the regulatory limits to nearby surface water after treatment. For the treated water to be discharged, an Environmental Permit will be obtained from the Provincial Directorate. During the operation phase of the Project, wastewater will be collected in non-leaking septic tanks to be provided at the License Area to be collected by vacuum trucks of the local Municipality to be discharged to the municipal sewage system.

5.8 How will hazardous and non-hazardous waste be managed?

Types of wastes to be generated during the land preparation and operation phase of the Project include municipal solid wastes, excavation and construction wastes, as well as hazardous and special wastes. Total amount of domestic waste, including packaging waste, to be generated during construction is not expected to cause a significant load to be added to the municipal disposal infrastructure. Yet, waste management trainings will be provided to the personnel for collecting packaging waste separately and decreasing the amount of waste generated. Recyclable excavation and construction wastes will be segregated and stored temporarily on-site for further recycling at licensed facilities. Other non-hazardous and non-recyclable construction wastes will be disposed by the Municipality. Hazardous and specials wastes will also be temporarily stored at locations designated for the type of waste, and will transferred to licensed facilities for disposal. Packaging wastes will also be generated during the operation phase of the Project, in amounts also considered to be negligible. Hazardous and special wastes to be generated during operation are minor quantities of hydrocarbons and other hazardous materials.

In order to ensure effective management of all waste generated as a result of Project activities, general and waste-specific mitigation measures will be implemented, such as; ensuring waste disposal agreements with the Municipality and recycling/disposal facilities are in place, providing adequate on-site storage, segregating wastes at source, providing waste management trainings to the personnel and implementing the Project Waste Management Plan.

5.9 Are there any natural protected areas to be impacted and how these will be managed?

The Project License Area does not overlap with any national, regional and/or global designated sites protected under the Protected Area System in Turkey. In line with the national Environmental Impact Assessment procedure, official views of both Governship of İzmir, Directorate of Environment and Urbanisation, and Ministry of Environment and Urbanisation, General Directorate for Protection of Natural Assets that the Project License Area is not included within a Natural Protection Area. The nearest designated area is İzmir Bayındır Ovacık Wildlife Reserve, located at a distance of about 11 km to the east of the Project License Area.

Although not official, The Key Biodiversity Area (KBA) inventory of Doğa Derneği identifies “Boz Dağlar” as one the KBAs in Turkey. The inventory of “122 Important Plant Areas in Turkey” also identifies Boz Dağ as an Important Plant Area (IPA), covering a smaller area in comparison to Boz Dağlar KBA. All available data and expert opinion suggest that what constitutes the major KBA-trigger, which might be at higher risk, is the endemic flora composition of the area, all of which are concentrated at the eastern half of the mountain range, at steppes and rocks of 1,400-2,160 meters, which fall completely outside the Project Licence Area, at such a high altitude. The Project-related activities are expected to have no impact on this particular zone, given distribution and range of these regional and local endemic species are restricted to the alpine zone (see Figure 5–1). Impacts of the Project on the KBA, which coincides with the Project License Area, have been assessed within the scope of the ESIA process, and Mersinli Biodiversity Action Plan (BAP). Accordingly, mitigation measures will be taken to ensure that there is no-net-loss of habitats and species’ populations within the Project Biodiversity Study Area as per EBRD PR 6 and IFC PS 6.

5.10 What are potential impacts and mitigation measures related to natural habitats, and flora and fauna species including bats and avifauna?

Mersinli WPP Project biodiversity studies have been undertaken within the scope of the ESIA process, which led to preparation of a Project-specific Biodiversity Action Plan. Data gathered through scoping, field surveys, and input from experts have been assessed to identify biodiversity conservation priorities, which would be the main focus of biodiversity actions to be taken throughout different phases of the Project.

Deforestation and land clearing at the Project License Area would leave the most significant impacts on biodiversity features, due to loss of natural habitats, which may also affect certain species’ populations. Project activities during the land preparation and construction phase will be limited to the Project footprint, where minimum clearing of natural vegetation will be ensured. Turbines will be sited so populations of biodiversity features identified at the Project License Area will not be compromised. Another potential impact is destruction of animal’s breeding sites and nests. Biodiversity studies indicate that there are alternative habitats for almost all identified fauna groups that breeding activity will continue in the area, despite construction activities. Removing vegetation before nesting season will be effective in avoiding further impacts on next generations. At the habitat level, the impact on overall composition will also be rather low, considering the integrity of habitats will be maintained. For the two identified priority habitats; *Pinus brutia* forests and acid siliceous rocks, and all terrestrial species of conservation importance, habitat and species-specific action plans have been prepared to be implemented by the Project Company and its contractors with the ultimate goal of no-net-loss of biodiversity within the Project License Area. In addition to general mitigation measures that will be taken to conserve all biota in line with Air Quality Management Plan, Noise Management Plan, Waste Management Plan, Reforestation Programme, Traffic and Transport Management Plan, etc., these actions target each one of the higher priority biodiversity features.

Operation phase impact of the Project on biodiversity features focuses mostly birds and bats, and to some extent on other fauna species. Accordingly, to estimate the collision risk of the bird and bat species with the turbines, detailed analyses have been carried out for both to understand the avifauna and bat composition of the Project License Area and define Project-related risks on identified species. Collision risk analysis conducted for target species suggests that the mortality rate would be very low, for breeders, non-breeders and also migratory species. If bird species are monitored to be impacted more than the estimated levels, measures like increasing cut-in-wind speed, temporary shutdown of some turbines during the breeding season and using UV lights to avoid collisions will be considered to be implemented. For bat species, recorded activity levels are quite low for bats of higher risk in the area, which may indicate that direct mortality rates may also be low. Also, no significant threat has been assessed for commuting routes - due to the low activity levels. In case of high level of bat fatalities, using methods such as blade feathering, increased turbine cut-in wind speed, and shutting down turbines temporarily during higher risk times of certain days and seasons will be effective in reducing mortality rates.

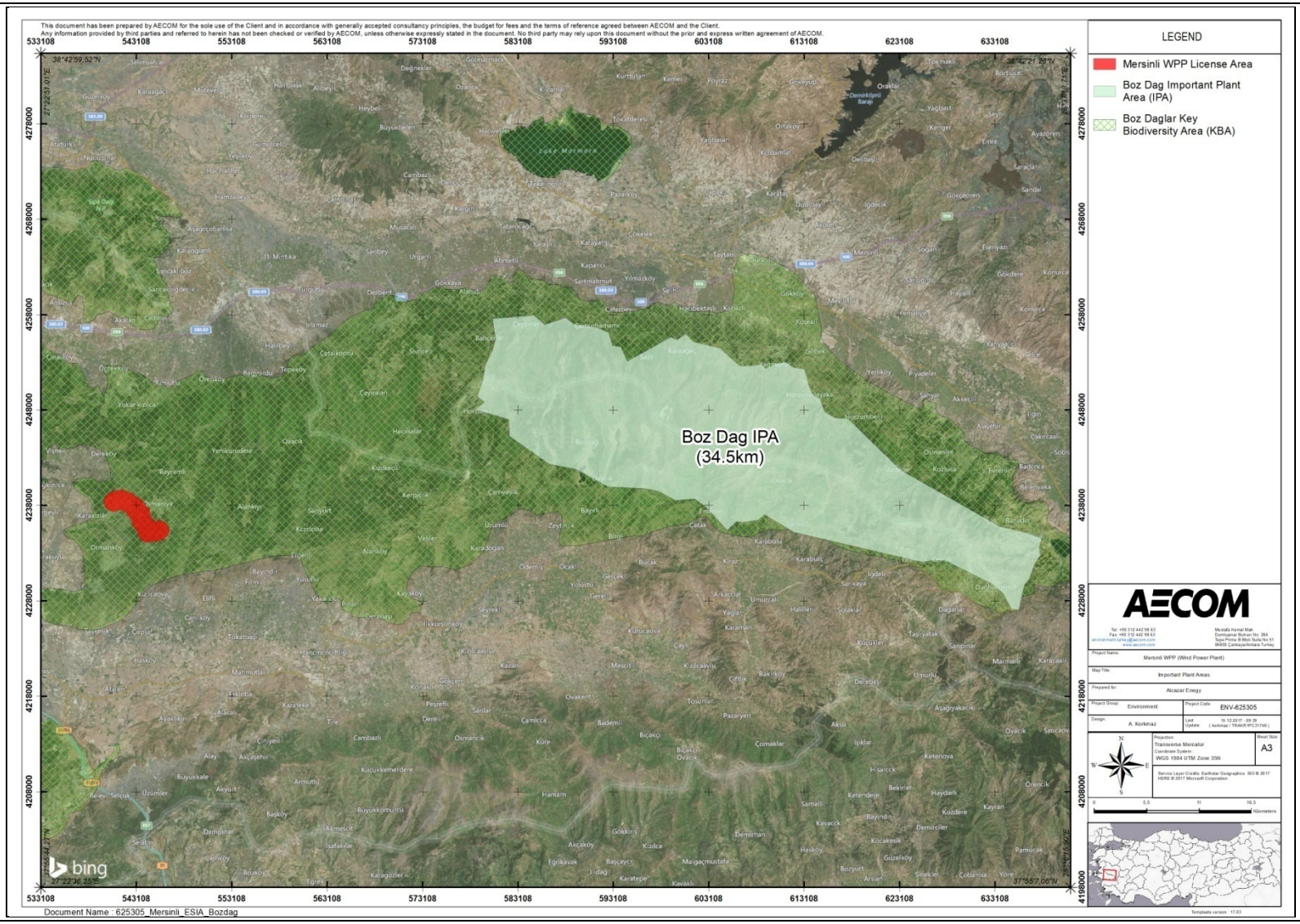


Figure 5–1. Project License Area with respect to Boz Dağ IPA and Boz Dağlar KBA

5.11 What are the visual impacts of the Projects and how to manage them?

Visual impacts of Mersinli WPP Project during land preparation and construction phase result from the installation of the turbines. These impacts will start off at a low magnitude, which will gradually increase and reach the highest level at the end of construction. Visual assessment of the Project turbines during the operation phase was carried out according to the operation-phase visibility of the turbines in the viewshed from the major visual receptors. From Marmariç Permaculture Village, which is the closest settlement to the wind turbines of the Project, two turbines (Turbine-16 and Turbine-17) will be seen from the communal areas and none of the turbines will be seen from the closest residential house located in this settlement. Turbines will also be seen from the surrounding Cumalı (3 turbines closest being at 2 km) and Çınardibi (11 turbines closest being at 2 km distance) neighbourhoods.

The change in the initial design of the Project, decreasing the number of turbines from 22 to 17 inherently resulted in avoidance of visual impacts that would otherwise have been caused by the additional turbines, three of which would be located to the north of the closest settlement to the Project components. The former design also included construction of a new ETL, which would also have caused further visual impacts that have been eliminated.

Construction-phase visual impacts will be minimised through the implementation of mitigation measures like reducing lighting, using materials with no light reflection, shielding obstacle lighting fixtures, and minimizing the height of stockpiles. Further measures during the operation phase include implementing the Project according to the current design specifications, establishing a connection to the existing ETL of Fuat WPP, using an underground cable system, and non-reflective materials so that visual impacts are minimized.

5.12 What impacts will there be on socio-economic features? What mitigation and compensation measures will be in place?

The Project License Area is located at the border of Bayındır, Kemalpaşa and Torbalı districts within Izmir Province. The License Area is surrounded by 11 neighbourhoods; among which Çınardibi has the largest population with 822 people. As a result of desktop studies, and interviews done with neighbourhood headmen and local people during the ESIA process, the main sources of income within all neighbourhoods have been identified as: agriculture, retirement pension and wage labour. Due to the suitable features of the land and climate, olive cultivation and cherry plantations are the most common agricultural activities among these neighbourhoods. Apart from agricultural activities, beekeeping and livestock activities are also carried out by local communities. Especially, beekeeping has been a rising trend for local people over the last decades.

Potential impacts on socio-economic features during the construction and operation phase of the Project can be listed as; land use impacts, employment and procurement opportunities, livelihood impacts and impacts on infrastructure. The total footprint required for the Project components is 31 ha of forest land, 1 ha of which is used for agricultural purposes, although not formally owned as agricultural land. A total of 150 people are planned to be employed during the construction phase of the Project, which would provide a limited benefit during the 16 months of construction that can be considered as a minor impact. All recruitment procedures will be in line with the Project Company's and its contractor's employment policies. The Project Company will seek to maximise the benefits from the Project to local communities in terms of direct and indirect employment, and purchasing of local goods and services during construction.

The most significant impact of construction activities on livelihoods would be dust and exhaust gas emissions. Cherry and olive plantations, as well as the beehives in the area are potential receptors of these temporary impacts, which will be managed through mitigation measures to be taken within the scope of Air Quality Management Plan.

Cherry plantations on land to be cleared for construction and operation of Turbine-12 and part of its access road are subject to the Project Livelihood Restoration and Compensation Framework (LRCF), which identifies details of how livelihood impacts will be compensated.

In order to minimize overall impacts on socio-economic features, construction will be restricted to designated areas, and all sites will be reinstated and rehabilitated upon completion of construction activities. Related management plans will be implemented so that all affected users of land will be appropriately informed and compensated throughout the Project life-cycle. Additionally, concerns of the local communities that are located within and in the vicinity of the License Area will be taken into consideration and measures that would minimize socio-economic impacts on such communities will be implemented in consultation with them.

5.13 What are the occupational health and safety risks and related management strategies?

Mersinli WPP Project activities to be conducted during different phases of the Project may pose potential occupational health and safety (OHS) impacts and risks on the site personnel, resulting from working at height, working in remote locations, lifting operation, hazards due to accidents, change in air quality, noise, site traffic, power lines and diseases.

All of these potential impacts have been identified and addressed through the ESIA process, for each phase of the Project. Management of OHS impacts and risks, as well as labour management, will be conducted in line with the Turkish Labour Law, and other related national legislation, the EU legislation, international standards and the International Labour Organization's conventions. Mitigation measures that will be taken to manage all potential Project-related impacts on the site personnel will cover but not limited to ensuring use of related personal protective equipment (PPE) and other protective measures, implementing limits on manual lifting, installing guard rails and signs, ensuring sufficient illumination, conducting regular controls of potential risks, restricting operation of heavy machinery to trained personnel, providing regular OHS trainings, and implementing the OHS Plan, as well as other related plans including Emergency Preparedness and Response Plan, Traffic and Transport Management Plan, Air Quality Management Plan, and Noise Management Plan.

5.14 What are the community health and safety risks and related management strategies?

There is also potential for Mersinli WPP Project activities to affect community health and safety (CHS), in terms of the health and safety risks identified during the Project ESIA process. During the land preparation and construction phase of the Project, increase in local transportation and traffic load, risk of exposure to communicable diseases, emergency situations like fires and natural hazards, potential restrictions to public access, and social misconduct may have potential impacts on local communities. Potential risks and impacts on CHS will be managed through implementation of related management plans, including the Traffic and Transport Management Plan, Emergency Preparedness and Response Plan, Waste Management Plan, Stakeholder Engagement Plan, as well as periodic medical check-ups, and health and safety trainings, which will ensure necessary mitigation measures are taken on-site.

During the operation phase of Mersinli WPP Project, one of the main concerns for CHS is the shadow flicker effect, which, based on model results of the Project ESIA will be within limits set by the IFC. The Project's Grievance Mechanism will be implemented to manage any related complaints. Furthermore, sight and light sensor monitoring will be conducted to evaluate whether vegetation or other means of screening would be effective to minimize impacts.

Although considered as a potential risk associated with wind power plants, there will be no ice throw risk for local settlements near the Project License Area. However, mitigation measures are still required for forest road users, workers, hunters and other road users, to prevent any potential impacts. In case of turbine failures, the blades themselves can also be thrown and may result in impacts such as forest fires and accidents, involving local communities and economic damage. Wild fires in the project area are relatively sparse; however, fire conditions will be monitored, in order to ensure that potential blade throw originated from burning of the related turbine tower is avoided. The Project design includes control system, which would automatically shut down in case of overheating, so under normal operation conditions, blade throw impact is considered as negligible.

Local communities also use the Project License Area and its vicinity for access and grazing activities. Therefore, any unauthorized access to close proximity of turbines and other Project units may constitute safety risks, especially in terms of falls from height, blade and ice throw, electrocution and traffic safety. As the Project transformers are housed inside the turbine hub, additional fencing will not be required.

5.15 Will the Project affect cultural amenities, and what measures will be taken?

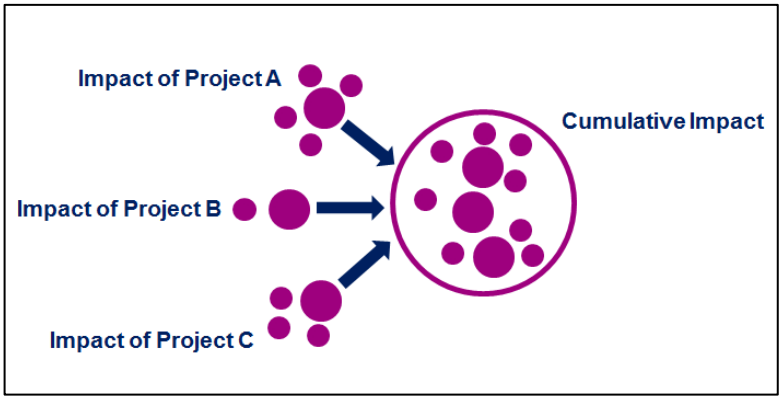
The only cultural amenity at the Project License Area was initially identified as a non-registered archaeological site at Zeybekmezarlığı locality of Bayındır district during the Project EIA Process. Following site investigations conducted by the authorities, the site was registered as a 1st degree archaeological site under the decision of the İzmir Regional Board of Conservation of Cultural Assets. Existing roads partially cross the site boundaries. Distance of the boundary of the 1st degree archaeological site to the closest turbine, which is Turbine-9 located in the south-southwest, is approximately 90 m.

To avoid impacts of the Project on this site, foundation of Turbine-9 was shifted 30 m south of its originally planned position. The temporary construction camp site location, which was adjacent to the western boundary of the archaeological site, was also reconsidered as part of the ESIA process and the Project Company decided to relocate the temporary camp site to an alternative site, which is located between Turbine-6 and Turbine-7. Final location and boundaries of the new camp site will be determined based on the results of the on-going topographical surveys.

Even though the locations of the turbine foundation (Turbine-9) and the camp site has already been revised to avoid impacts on the registered archaeological site, further measures will be taken by the Project Company. As the site will remain within the Project License Area throughout the operation phase, a Cultural Heritage Management Plan will be prepared by qualified experts prior to the start of construction phase. This Management Plan will identify site specific measures ensuring avoidance/minimisation of potential impacts that may be caused by the use of the existing forests roads in the scope of the Project. Accordingly, mitigation measures will be in place to ensure earthworks and construction activities are restricted to designated sites, all personnel are informed about the work restriction at this cultural heritage area, and coordination with authorities is established so that access to the site is not prevented or restricted due to the Project. A Chance Find Procedure will also be implemented to prevent potential harm to any other undiscovered archaeological finds that might be present at the Project License Area.

The Project does not propose to use any intangible forms of culture, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles, for commercial purposes. According to the social surveys and consultation done as part of the ESIA, intangible cultural heritage forms identified in the settlements surrounding the License Area (e.g. Spring celebration-Hidrellez) are not assessed to be affected by the Project activities. e.g. an increased workforce presence, or construction and operational activities.

5.16 What is the Cumulative Impact Assessment approach?



A cumulative impact assessment (CIA) is undertaken when a series of developments, which may or may not be of the same type, are occurring or being planned within an area where they would impact the same valued environmental and social components (VESCs), which may include physical features, social conditions and cultural aspects. A six-step approach, as proposed by the IFC, has been followed to conduct a CIA for Mersinli WPP Project. Accordingly, first spatial and temporal boundaries were determined followed by identification of VESCs and all developments within, determination of present conditions of the VESCs, assessment of cumulative impacts and evaluating their significance, and finally implementing effecting management strategies and mitigation measures.

Within the scope of the ESIA process, a number of WPP developments have been identified within the wider CIA Study Area, some of which are in operation, while others are at planning stage. The closest of these is Fuat WPP, where the shortest distance between two turbines from each WPP is about 3.5 km (air distance). The 154-kV-ETL of Fuat WPP is also crossing the License Area, between Turbine-4 and Turbine-5, which will also be utilized by the Project. There are also identified mine areas, dams, and smaller ponds, as well as a geothermal power plan that fall into the boundaries of the CIA Study Area.

Assessment of cumulative impacts of Mersinli WPP Project together with other projects has been conducted with technical information that is readily available to public. During the construction phase of the Project, cumulative impacts on air quality are expected to affect some of the settlements that are involved in beekeeping. Yet, these will be temporary impacts, and are expected to be negligible during the operation phase of the Project.

For the management of cumulative impacts, it is important to underline that the responsibility of the management/mitigation of the cumulative impacts resulting from the actions of multiple stakeholders involves a collective responsibility which requires individual actions to eliminate or minimize the contribution of each action/development.

International best practices suggest that, when several wind power plants in a region are projected to be realized, as in the case of the Aegean Region of Turkey, it is more effective for different project owners to come to an agreement on a single cumulative impact assessment, which can also be supervised by the related authorities. Especially during operation of WPPs, government supervised monitoring of wind power plant impacts on various VESCs, would be necessary to take more effective measures for mitigation.

6. Environmental and Social Management System (ESMS)

6.1 What is the ESMS structure?

Mersinli WPP Project Environmental and Social Management System (ESMS) has been developed as part of the ESIA process. The main objective of the ESMS is to provide details of environmental and social (E&S) management strategies to be implemented throughout the course of the Project, in compliance with the provisions of the national legislation, EBRD and IFC requirements, as well as the international standards and GIIP. To help assess, control and continually improve the overall environmental and social performance of the Project, the ESMS is structured to include the following topics in a comprehensive, yet compact and integrated manner, which is open for revision and update as the Project proceeds:

- *Policy*
- *Identification of Risks and Impacts*
- *Management Programs*
- *Organisational Capacity and Competency*
- *Emergency Preparedness and Response*
- *Stakeholder Engagement*
- *External Communications and Grievance Mechanism*
- *Ongoing Reporting to Affected Communities*
- *Monitoring and Review*

6.2 Which management plans and programs will be implemented?

The main approach in ESMS implementation is ensuring consistency of all adopted E&S processes and procedures throughout the Project phases, with the required adaptation flexibility to ensure a management system that can cater to any transforming E&S issue related to the Project. The following plans and programs will be in place to do so:

- *Environmental and Social Management and Monitoring Plan (ESMMP)*
- *Biodiversity Action Plan (BAP)*
- *Erosion Control, Soil and Spoil Management Plan*
- *Noise Management Plan*
- *Air Quality Management Plan*
- *Waste Management Plan*
- *Emergency Preparedness and Response Plan*
- *Occupational Health and Safety Plan*
- *Livelihood Restoration and Compensation Framework (LRCF)*
- *Contractor Management Framework Plan*
- *Stakeholder Engagement Plan (SEP)*
- *Grievance Mechanism*
- *Community Development Plan*
- *Reforestation Programme*
- *Traffic and Transport Management Plan*
- *Chance Finds Procedure*

6.3 How will Project Company meet its commitments through the Project ESIA, ESAP and ESMS?

Sustainable and sound management of environmental and social issues related to Mersinli WPP Project requires that the Project Company sets forth clear E&S policies outlining its commitments to meet the Project standards. The corporate level policies; Human Resources Policy, Health and Safety Policy, Environmental and Social Sustainability Policy and Quality Policy have already been prepared in line with the IFI requirements. The Project Company and the Contractor will also develop Project-specific policies. Therefore, each management strategy within the scope of the Project will be applied through implementation of these policies, management plans, as well as sub-level procedures, which are prepared in accordance with the overall objectives of the Project ESIA and Environmental and Social Action Plan (ESAP).

Effectiveness of management strategies and prevention/mitigation measures will be controlled through a comprehensive monitoring program, which will be conducted on a regular basis to ensure continuous compliance with Project standards, and progress towards meeting targeted actions within the scope of ESAP and related management plans.

6.4 What will the Project Company do in case of an emergency?

An Emergency Preparedness and Response Plan will be developed, providing preventive measures and response strategies in case of accidents that may likely occur at a WPP of the Project's scale, as well as preparedness and response measures to protect the public health, safety and environment on and off the Project area in the situation of a disaster such as a potential natural hazard, including forest fires, or sabotage. The Plan will detail roles and responsibilities for emergency management, identification of potential emergencies and key areas prone to emergency situations, actions to be taken prior to, during and after an emergency, and a contact list for emergency situations.

6.5 How is the Livelihood Restoration and Compensation process undertaken?

Mersinli WPP Project Livelihood Restoration and Compensation Framework (LRCF) has been prepared to be disclosed as part of the ESIA Disclosure Package in line with the EBRD PR 5 and IFC PS 5. The main objective of the LRCF is to provide livelihood restoration options for peopled affected by the Project and compensation for their economic displacement, so that affected livelihoods are restored to pre-project standards and if possible are improved. The LRCF is structured to provide background on livelihoods in the area, report on findings of consultation activities, identify feasible livelihood restoration options and alternative economic activities that can be facilitated by the Project Company and specify an implementation schedule for related activities and programs.

In line with the EBRD and IFC requirements, Mersinli WPP Project LRCF defines eligibility for livelihood restoration and compensation not only in terms of being registered owners. Instead, all users are being equally treated. Therefore, all Project Affected Persons (PAPs), whose land will be affected by the Project, are eligible to participate in the livelihood restoration activities. In line with the entitlements and activities planned within the scope of the LRCF, all PAPs who would be impacted by Project-related activities will be compensated for their loss of assets and livelihoods.

6.6 How will the Project Company communicate with stakeholders through the Stakeholder Engagement Plan?

In addition to stakeholder engagement activities that have already been conducted within the scope of Mersinli EIA and ESIA processes, further future activities will be conducted throughout the lifetime of the Project, with the ultimate goal of establishing and maintaining constructive relationships, including public consultation and information disclosure strategies. Stakeholder engagement activities and means of communicating with the key stakeholders will be regularly reviewed, updated and reflected accordingly in the next revisions of the SEP.

In line with the SEP, the Project Company will use various methods of communication and information throughout construction, operation and decommissioning phases of the Project. Electronic and hard copies of the ESIA Disclosure Package will be disclosed (in Turkish and in English) on Alcazar Energy's internet site (http://alcazarenergy.com/our-projects/) as well as Lender's web sites (http://www.ebrd.com). Hard copies of the full ESIA documentation will also be available at the following locations:

- Yander's Istanbul Office
- İzmir Governorship
- Bayindir, Kemalpaşa and Torbalı District Sub-governorships
- Bayindir, Kemalpaşa and Torbalı Municipalities
- Cumalı and Çınardibi Neighbourhood Headman Offices
- EBRD Resident Office in İstanbul

6.7 How to relay comments and complaints about the Project?

A grievance mechanism tailored for the local communities, comprising of the grievance procedure and associated grievance form and record of grievances will be in place throughout all phases of the Project. The grievance mechanism will be established to include separate modules for external and internal grievances so that all complaints are handled in a timely and appropriate manner. A grievance mechanism tailored for the local communities, comprising of the grievance procedure and associated grievance form and record of grievances will be in place throughout all phases of the Project. Grievances and details of responses will also be recorded and reported internally on a regular basis.