

Denizli Wind Power Plant



NON-TECHNICAL SUMMARY

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Abbreviations

AKFEN	AKFEN Renewable Energy
CSR	Corporate Social Responsibility
EIA	Environmental Impact Assessment
ESDD	Environmental and Social Due Diligence
ESIA	Environmental and Social Impact Assessment
EBRD	European Bank for Reconstruction and Development
Garanti	Türkiye Garanti Bankası A.Ş.
IFC	International Finance Corporation
İş Bank	Türkiye İş Bankası A.Ş.
Korda	Korda Enerji Üretim Pazarlama İthalat ve İhracat A.Ş.
NTS	Non-Technical Summary
PDoEU	Provincial Directorate of Environment and Urbanization
PR	Performance Requirement
PS	Performance Standard
TEİAŞ	Turkish Electricity Transmission Corporation
“The Lenders”	the “EBRD”, “Garanti”, “İş Bank”, “Vakıfbank” and “YKB”
“The Project”	The Denizli Wind Power Plant
Vakıfbank	Türkiye Vakıflar Bankası T.A.O
WPP	Wind Power Plant
YKB	Yapı ve Kredi Bankası A.Ş.

1.0 INTRODUCTION

1.1 What is the goal of this document?

This document is a non-technical summary (NTS) of the Environmental and Social Impact Assessment studies conducted for the Project according to the standards of international Lenders (European Bank of Reconstruction and Development). It has been presented in a non-technical language. It presents basic information about the Project, potential environmental and social impacts related with the project and the mitigation measures proposed by Akfen Renewable Energy. This document aims to inform and answer questions stakeholders may possible have. It also aims to foster a two way line of communication between stakeholders and Project representatives by presenting information on the stakeholder grievance mechanism.

1.2 What is renewable energy?

There are many methods of obtaining energy. From burning coal for steam to harnessing the power of the wind, the variety of options is quite extensive. Energy production methods can be separated into two categories: Renewable and Non-renewable energy. Theoretically, the source of energy for the production of renewable energy cannot be used up, unlike the sources for non-renewable energy production. For example, steam powered thermal power plants are a form of non-renewable energy as they rely on the incineration of biomass, such as coal, to produce steam and the amount of coal in the world is limited. However, other energy sources such as solar, wind, geothermal, etc. cannot be “used up”. As a result, these types of energy sources are known as “renewable”.

While the sources of renewable energy may not be limited, implementation of renewable energy production can be limited, as it depends on whether or not access to said energy is available. For instance, wind energy may be a renewable form of energy, but not all locations receive enough wind to allow energy production from wind power plants to be viable.

1.3 Why renewable energy?

The Earth’s temperatures are climbing at an alarming rate driven by the ever increasing amount of greenhouse gases released into the air. With rising temperatures, the Earth’s climate is being forced to change. More extremes are experienced, including more flooding, more drought and severe heat events. The effects of climate change reach every corner of our planet, and Turkey itself is expected to be highly impacted. As a result, it is in the best interest of the world and Turkey to prevent the release of greenhouse gases.

One of the main sources of greenhouse gases is the energy sector. The combustion of non-renewable fuels such as coal, oil and natural gas all result in the release of greenhouse gases. Renewable energy sources produce significantly less greenhouse gases because instead of obtaining energy from non-renewable fuels, they source their energy from relatively “cleaner” options. Therefore, investments in renewable energy are a way for the world to combat climate change.

Renewable energy options are also generally independent energy productions options. For instance, natural gas is a relatively clean energy option, but in the case of Turkey, it typically extracted from foreign entities and imported. The more fuel sources Turkey imports, the more dependent it is on other countries for producing its own energy. However, renewable energy options, such as solar and wind power belong to where ever the sun shines and the wind blows; these energy options provide energy independence.

The demand for energy in Turkey is increasing, as are the tensions in the region and the effects of climate change, making the use of clean, renewable energy that is not dependent on a foreign source even more important. According to the Ministry of Energy and Natural Resources the total electricity consumption in Turkey increased by 4.7% to 167.1 billion kWh between July 2016 and July 2017, and production increased 6.7% to 167.3 billion kWh. As of July 2017, of the electricity produced, 34% was produced from natural gas, 31% from coal, 24% from hydropower, 6% from wind power, 2% from geothermal power, and 3% from other sources¹, such as solar, biomass and heating oil. Thus, over 60% of Turkey's power relies on non-renewable resources. Hence investment capacity of renewable energy, such as wind power, is very important.

1.4 How do we harness the energy in wind?

Wind is the movement of air. Anything that moves has energy. In order to capture that energy it needs to be transformed into an energy we can use, like electricity. In order to do this wind turbines are erected. When the wind pushes against these turbines, they in turn generate electricity. This electricity is transferred to a switchyard, whereafter it is sent via powerlines to the national electricity distribution network.



Figure 1: Example photos of wind turbines, powerlines, and a switchyard

¹ (T.R. Ministry of Energy and Natural Resources, n.d.)

1.5 What is the Denizli Project?

The Denizli Project (the Project) is a renewable energy wind farm project officially named the “Denizli Wind Power Plant (WPP)”. The Project is owned Korda Enerji Üretim Pazarlama İthalat ve İhracat A.Ş. (Korda), a company within the Akfen Renewable Energy Group (Akfen).

Feasibility studies were conducted to determine how much wind energy can be harnessed through the Project. After various designs were considered, it was decided to install 22 wind turbines, each functioning at a 3 MW capacity. Therefore the total installed capacity of the Project will be 66 MW. The results of the feasibility study predict that the Project will produce approximately 184,472,600 kWh/year.

According to the World Bank, as of 2014 the world-wide average consumption of electricity was approximately 3,125 kWh/capita. By comparison, the average rate for the consumption of electricity in 2014 in Turkey was slightly less, totalling at 2,855 kWh/capita.² If the feasibility study energy production predictions prove correct, this energy will be enough to supply the electricity required for 64,613 people in Turkey. However, this Project is actually a component of a four-part wind farm project launched by Akfen Renewable. In addition to the Denizli WPP (66 MW), Akfen Renewable Energy is launching the Üçpınar WPP (99 MW), the Kocalar WPP (26 MW), and the Hasanoba WPP (51 MW) in the Province of Çanakkale. Together, the four projects will produce 242 MW of installed power, generating approximately 818 million kWh/year which is enough electricity to meet the needs of 286,533 persons in Turkey.

In addition to the wind turbines themselves, several facilities will be constructed that will be associated with the Project. These are known as “associated facilities” and include the access roads, the powerlines, and the switchyard that are to be constructed to connect the Project to the national grid. The powerline is to be 18.9 km in length and will connect to the already existing 154 kV Tavas Transformer Station. The connection agreement for the powerlines was signed on July 15th, 2017. All powerlines are the property of the Turkish Electricity Transmission Corporation (TEİAŞ). No construction on the powerlines has commenced. Due to its length, an EIA was prepared for the powerlines and submitted to the Ministry. Said EIA has been approved. The construction will be handled by Akfen, based on the connection agreement; but other permits and expropriation works will be completed by TEİAŞ.

1.6 Who is Akfen?

Akfen Renewable Energy is a part of the umbrella group Akfen Holding. While Akfen Holding invests in, manages, and coordinates activities in multiple sectors, ranging from airports, ports, marine transportation, construction, water distribution and wastewater collection networks, energy production, real estate, and more; Akfen Renewable Energy is more focused, and only deals in the renewable energy sector. Akfen Renewable Energy interests include hydropower, solar, wind and geothermal energy production.

As of June 2017, the EBRD and IFC owned a total of 19.99% of the shares of Akfen Renewable Energy, each with a 9.99% share. AKFEN Holding's share in Akfen Renewable Energy is 80.1%.

1.7 Where is the Denizli Project?

The Denizli Project is located in the south west of the Anatolian Peninsula, along the border of the Province of Denizli and the Province of Aydın, in the Republic of Turkey. The Project is over 360 km south of İstanbul and approximately 400 km south west of the Turkish capital, Ankara (See Figure 2).

² (International Energy Agency, 2014)



Figure 2: Location of the Provinces of Denizli and Aydın with respect to the Provinces of Ankara and İstanbul

The nearest settlements are Yeniköy (5.1), Palamutçuk (5.5 km), Işıklar (5.75 km), Damdere (4.75 km), Dikmen (5.6 km) Villages in Aydın and Kıranyer (3.8 km), Demirli (3.1 km), Babadağ (4.9 km), Yeniköy (4.8 km) and Kelleci (5.8 km) Villages in Denizli. The nearest settlement to the powerline is Karahisar Village with 350 m distance. The Yahşiler Village is located 1.5 km southeast of the powerline. The Vakıf Village is located 2.9 km east of the transformer. Access to the Project site is provided by the existing roads and additional roads to be constructed.

Furthermore, it is located within the important natural area, the Akdağ-Denizli Mountain Region (See Figure 3), as decided by Doğa Derneği. This important natural area has been taken into consideration in the assessment of this Project.

The Denizli WPP Project License Area intersects with Geothermal License Area (ER: 3267818), which is provided below in Figure 4.

It was stated by MİGEM (Official Correspondence Date/Number: 21.01.2014/31912) that “There is no objection to the realization of the Project”.

It was stated by Aydın Provincial Directorate of Investment Monitoring and Coordination (Official Correspondence Date/Number: 30.03.2017-6489) that “There is no objection to the realization of the Project in the case of all necessary permits are from related authorities”.

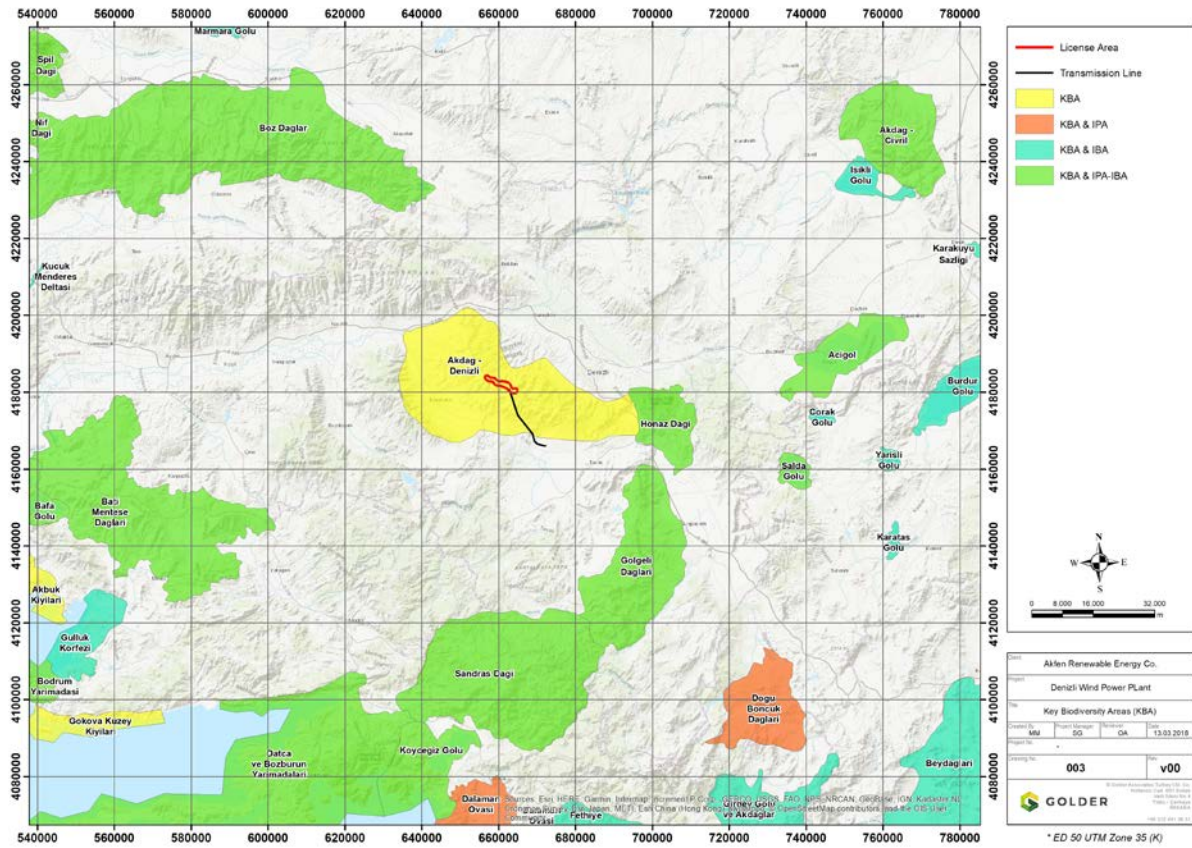


Figure 3: The Project location is noted with respect to the Akdağ Mountain region³ and other important natural areas

³ <http://www.dogadernegi.org/>

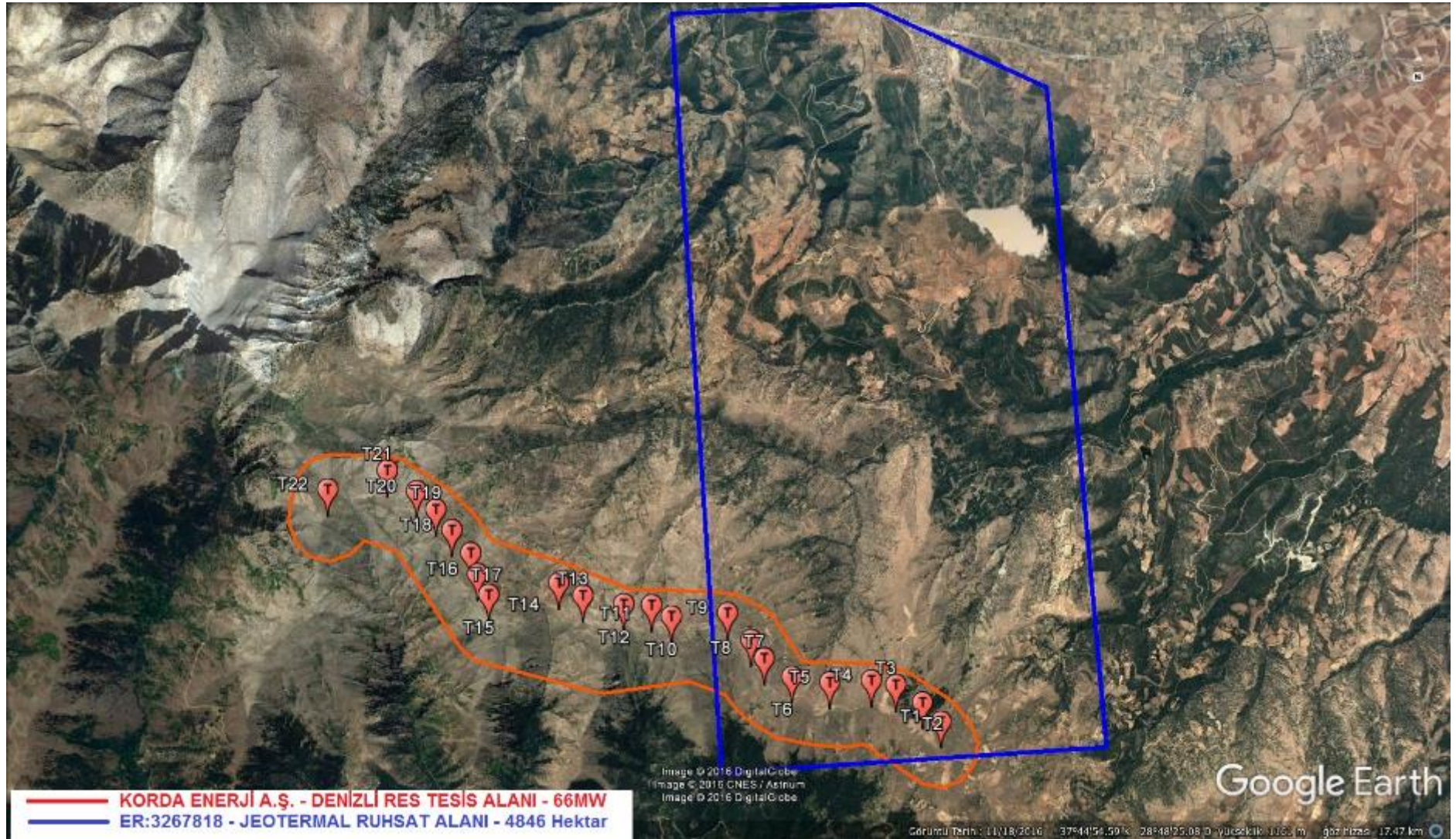


Figure 4: The location of the Project (in red) with respect to the geothermal license area

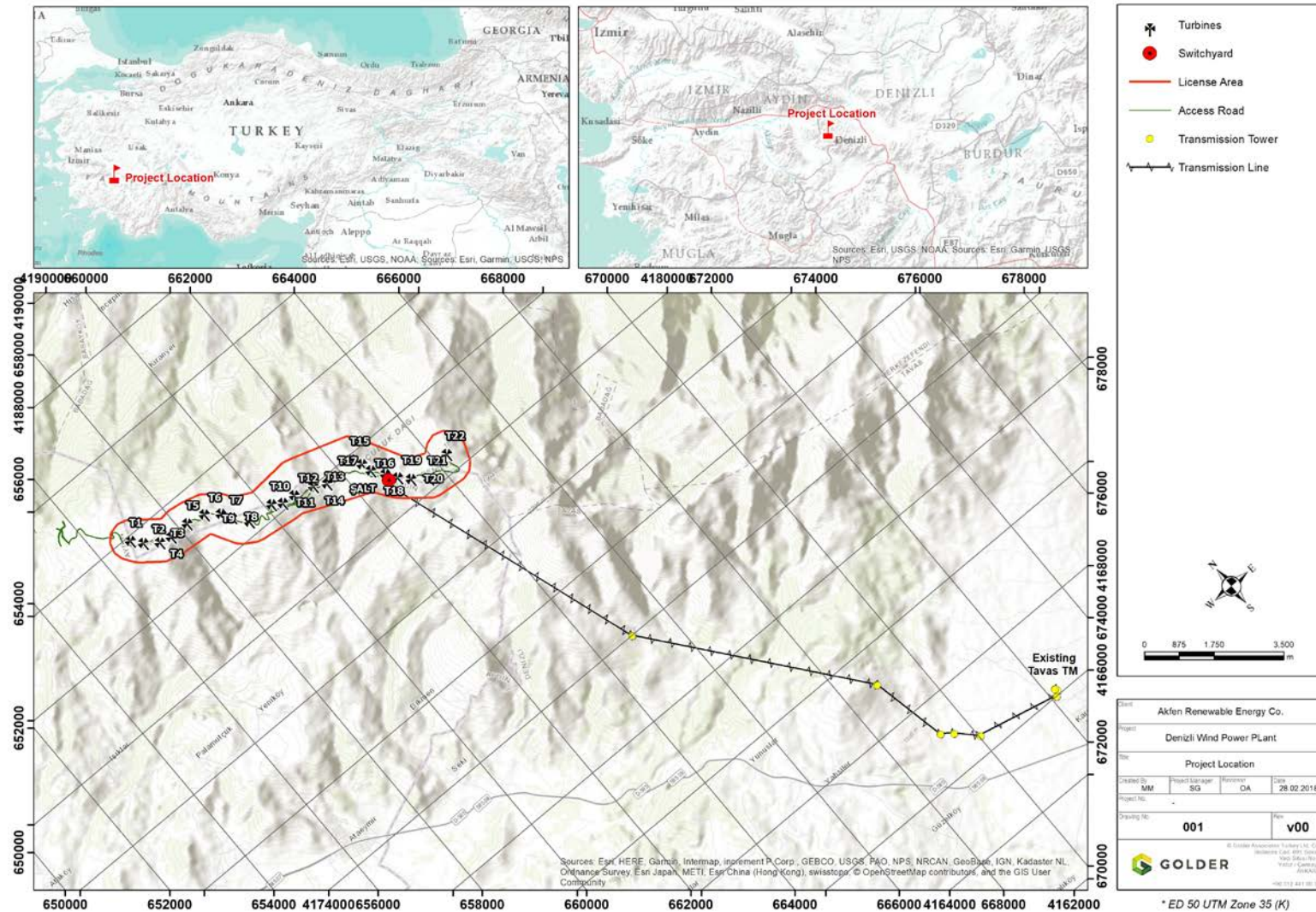


Figure 5: The location of the Project and the locations of its components



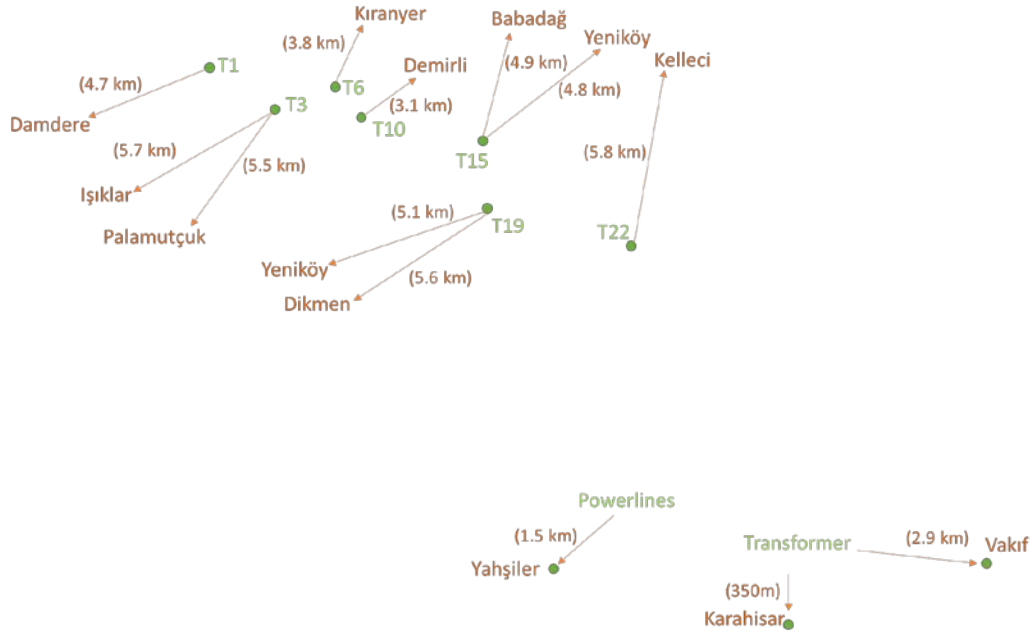


Figure 7: Distances between the nearest turbines and settlements

The turbines are to be located at higher elevations, in order to capture more wind energy. This means, that they are more visible and located in areas with limited human access. Views of each of the turbine locations within the Project area are given in the figures that follow to provide perspective on the setting of the Project area.



Figure 8: Project area setting of the planned Turbine 1 location



Figure 9: Project area setting of the planned Turbine 2 location



Figure 10: Project area setting of the planned Turbine 3 location



Figure 11: Project area setting of the planned Turbine 4 location



Figure 12: Project area setting of the planned Turbine 5 location



Figure 13: Project area setting of the planned Turbine 6 location



Figure 14: Project area setting of the planned Turbine 7 location



Figure 15: Project area setting of the planned Turbine 8 location



Figure 16: Project area setting of the planned Turbine 9 location



Figure 17: Project area setting of the planned Turbine 10 location



Figure 18: Project area setting of the planned Turbine 11 location



Figure 19: Project area setting of the planned Turbine 12 location



Figure 20: Project area setting of the planned Turbine 13 location



Figure 21: Project area setting of the planned Turbine 14 location



Figure 22: Project area setting of the planned Turbine 15 location



Figure 23: Project area setting of the planned Turbine 16 location



Figure 24: Project area setting of the planned Turbine 17 location



Figure 25: Project area setting of the planned Turbine 18 location



Figure 26: Project area setting of the planned Turbine 19 location



Figure 27: Project area setting of the planned Turbine 20 location



Figure 28: Project area setting of the planned Turbine 21 location



Figure 29: Project area setting of the planned Turbine 22 location

1.8 What is the purpose of the Project?

As discussed, Turkey needs further investments in renewable energy and Turkey has an abundance of wind resources ripe for wind harvesting potential (See Figure 30). In this respect, the purpose of the Denizli WPP is to provide clean independent energy in a sustainable and cost effective way and therefore contribute to the region and the nation.

To this end, Akfen has contracted with a consultancy company to be registered as a voluntary carbon credit mechanism project, in the “Large Scale Wind Power Plant” category. It is estimated that the Denizli Project will result in the reduction of 89,992 tonnes CO₂/year, a key greenhouse gas. The process will be carried out by creating a record of the Ministry of Environment and Urbanization within the scope of the Voluntary Carbon Market Project Registration Communiqué.



Figure 30: Turkey Wind Map4

⁴ Turkish State Meteorological Service, Turkey Wind Map

1.9 What is the status of wind power in the Denizli and Aydin Provinces?

The Denizli WPP will not be the first WPP in the Province of Denizli⁵, but not the first for the Province of Aydin, which currently has 8 WPP, 1 being constructed and 4 in the licensing process⁶. In fact, 20% of Aydin's electricity is produced by wind energy⁷, whereas this figure is 0% in Denizli. Therefore, the Denizli WPP is an overdue investment in the Denizli Province.

2.0 THE PROJECT IN DETAIL

2.1 Who is funding the Denizli Project?

The European Bank for Reconstruction and Development (the "EBRD"), Türkiye Garanti Bankası A.Ş. ("Garanti"), Türkiye İş Bankası A.Ş. ("İş Bank"), Türkiye Vakıflar Bankası T.A.O ("Vakıfbank") and Yapı ve Kredi Bankası A.Ş. ("YKB") (together as the "Lenders") intend to provide financing to Akfen Renewable Energy ("Akfen" or the "Investor") for the development of a variety of renewable energy projects, including the Denizli Project.

2.2 What standards will be employed in the Denizli Project?

Akfen commits to adhere to the provisions of Turkish Legislation applicable to the Project during the life time of the Project. These requirements include (but are not limited to) the Environment Law, Occupational Health and Safety Law, Labour Law and their issued regulations.

The Project will adhere to whichever legislation or guidelines are more stringent. These include the Environmental and Social Performance Requirements of the EBRD, the Performance Standards of International Finance Corporation (IFC), and national legislation.

Akfen has an Environmental and Social Management System (ESMS) and environmental, social and health & safety control measures are identified in relevant plans and procedures. The purpose of the ESMS is to have a systemized method of responding to any issues that arise during a project and for conducting basic day to day procedures. It establishes accountability, order and efficiency in a Project.

After the partnership of Akfen Renewable Energy with EBRD and IFC, a Corporate Environmental and Social Action Plan (ESAP) has been developed. This corporate ESAP is an overall action plan for addressing any and all environmental and social components that may be impacted by the four WPP projects that Akfen is investing in. The corporate ESAP will be monitored annually and will be reported to the EBRD and IFC.

In addition, the Project will be monitored during periods that will be specially identified in the project specific ESAP.

2.3 What is the history and current status of the Project?

The energy generation license for the Denizli WPP was obtained on August 18th, 2011, with license number EÜ/3382-10/2050 for 49 years. Thus, this license will expire on March 1st, 2060. The licenses of the Denizli WPP were initially held by Doğanlar Holding, together with those for the Kocalar WPP, Üçpınar WPP and the Hasanoba WPP. Akfen acquired all four of the WPP licenses from Doğanlar Holding on June 13th, 2017.

⁵ <http://www.enerjiatlası.com/ruzgar-enerjisi-haritasi/denizli>

⁶ <http://www.enerjiatlası.com/ruzgar-enerjisi-haritasi/aydin>

⁷ <http://www.enerjiatlası.com/ruzgar-enerjisi-haritasi/aydin>

Akfen has started pre-construction activities of the Project, including road construction and/or renovation on already existing access roads. Tree clearing has also been performed by the authorities. Construction is planned to commence at any time after March 2018.

Associated facilities of the Project that were included in the Area of Influence during the Environmental and Social Due Diligence⁸ (ESDD) are comprised of the access roads, the powerlines and the switchyard that are to be constructed to connect the Project to the national grid. The powerline is to be 18.9 km in length and will connect to the already existing 154 kV Tavas Transformer Station. The connection agreement for the powerline was signed on July 15th, 2017. All powerlines are the property of the Turkish Electricity Transmission Corporation (TEİAŞ). No construction on the powerline has commenced. An EIA was drafted for the powerline and sent to the Ministry. It has been approved. The construction will be handled by Akfen, based on the connection agreement; but other permits and expropriation works will be completed by TEİAŞ. Permits that have been issued are listed in Table 1.

Following the completion of the construction activities, the commissioning activities will be initiated. The authority approval will be taken to start operation phase which will continue until 2060 according to the Energy Generation License.

Table 1: Issued Permits

Received Permissions	Issue Date	Official Letter / Decision Number	Expiry Date
Energy Generation License	18.08.2011	EÜ/3382-10/2050	2060
“EIA not Required Decision” obtained from the MoEU	15.07.2011	42	15.07.2016
“EIA not Required Decision” is confirmed to be valid by the official letter	03.04.2017	5376	NA
Energy Connection Agreement with Turkish Electricity Transmission Corporation (TEİAŞ)	15.07.2017	NA	NA
EIA Approval of Powerline	23.03.2018	5023	23.03.2025
Denizli Metropolitan Municipality: Approval of Zoning Plan	20.08.2014	481	NA
Aydın Metropolitan Municipality: Approval of Zoning Plan	16.10.2014	132	NA
Urgent Expropriation Decision	21.04.2015	58	NA
Final Forestry Permit	14.01.2015	8	NA

⁸ An ESDD is completed to identify the potential environmental and social risks associated with a Project.

2.4 What is the Project schedule?

The duration for preliminary land preparation and pre-construction works will be 6 months and construction works will be 20 months. The duration of the Project operation license is 49 years.

The key milestone for the implementations of the project are presented in Table 2.

Table 2: Project Schedule-Summary

TASK	START DATE	FINISH DATE
Basic Design	March 2018	May 2018
Detailed Engineering	May 2018	August 2018
Procurement	July 2018	December 2018
Land Clearing	March 2018	July 2018
Construction	March 2018	October 2019
Turbine Montage	November 2018	September 2019
Commissioning	August 2019	October 2019
Operation	October 2019	2060

2.5 Does the Denizli Project have any potential impacts?

Yes, it does. There are both positive and negative impacts that could potentially manifest as a result of the Denizli Wind Power Plant. These have been identified and mitigation measures have been designed. Mitigation measures are used to lessen the effect of a negative impact and to increase the benefits of a positive impact. Some of these mitigation measures to be implemented have been listed in the sections below.

2.6 What has been done to study these impacts?

First, a Project Description File (PDF) was prepared and submitted for the wind turbines. An “EIA is not required Decision” was handed down (Dated: 15.07.2011, Numbered: 42). Therefore, no EIA has been prepared for the WPP Project. However, an EIA was drafted for the powerline route and it was approved on 23.03.2018.

While an EIA may not be required for the WPP, authoritative bodies requested other assessments be made; these included an **Ornithological Ecological Assessment Report and a Landscape Rehabilitation Report**.

With the aid of professional consultants, Akfen has also conducted additional assessments and created plans in order to determine certain baseline conditions, identify potential impacts and how to mitigate them; these include a **Noise Evaluation Report and Noise Maps**; a **Bird Monitoring Report**; **early engagement meetings**; and the generation of a **Preliminary Stakeholder Engagement Plan**. All of the aforementioned are summarized below:

- **Ornithological Ecological Assessment Report:** This report was prepared to assess the flora and fauna characteristics and components of the project area. In WPP projects the most vulnerable populations are **birds and bats**. Possible impacts on these populations and mitigation measures were defined in this study. The study was carried out by a team composed of a zoologist and an ornithologist in December, 2013.
- **Landscape Rehabilitation Report:** This report was prepared to assess the possible impacts on the natural environment during both the construction and operational stages of the Denizli WPP and to take the necessary mitigation measures. For this purpose the natural and cultural assets

of project area were determined, an impact assessment was made, and applicable mitigation measures were defined.

- **Noise Evaluation Report and Noise Maps:** An evaluation report and maps were prepared to assess the noise generation during the operation of the WPP and mitigation measures were identified.
- **Bird Monitoring Report:** This report was prepared by monitoring local and migrating birds and their interaction with bats and other wild life during the spring and autumn seasons in 2014. Afterwards, an assessment was made regarding vulnerable vertebrates. Said monitoring study was conducted by expert ornithologists.
- **Early engagement meetings:** Meetings were held to protect the social environment and local people living in the project impact area. The initial living conditions, demands, expectations, suggestions and complaints of local people were determined. Contribution to local stakeholders during project implementation is aimed.
- **Preliminary Stakeholder Engagement Plan:** A preliminary stakeholder engagement plan was drawn up to categorize the main social issues regarding the Project and to establish a preliminary social baseline. This was later added upon by Golder. (See below)

Golder has prepared an Environmental Social Due Diligence (“ESDD”) report to highlight areas of concern or omissions so as to confirm the compliance or otherwise of the Project with the applicable EBRD Environmental and Social Policy (“ESP”) and Performance Requirements (“PR”s), International Finance Corporation (“IFC”) as well as current Turkish legislation.

The following studies were conducted with Golder:

- **Shadow Flicker and Blade/Ice Throw Assessment:** This assessment was carried out by Golder in February, 2018 and the report was drawn up in line with the IFC, Environmental, Health, and Safety Guidelines for Wind Energy. A specific software program named windPRO was used for the assessment of shadow flicker. The study included the calculation of how often and at which times of the day a specific neighbour or area will be affected by shadows generated by one or more wind turbines.
- **Stakeholder Engagement Plan:** This plan was developed by Golder in March 2018. The study includes all identified stakeholders, defined roles and responsibilities, defined project standards, the tools and methods to be used for the information disclosure and the grievance mechanism (given at the end of this NTS).
- **Additional Biological Data Collection Studies:** Bird studies were initiated in March 2018 and further studies on flora and other fauna (bats) were started in May 2018 to support the findings of the existing studies and provide the further input for the definition of monitoring and mitigation strategy for conservation of biodiversity and natural resources.

2.7 What are the potential positive impacts of the Project and how can they be amplified?

During the Construction Phase:

- **Impact:** Socially and economically speaking, local procurement is a positive impact of the Project.

Mitigation Measures:

-Local procurement and employment will be prioritized. (See Section 2.11)

During the Operational Phase:

- **Impact:** Socially and economically speaking, local procurement is a positive impact of the Project.

Mitigation Measures:

-Local procurement and employment will be prioritized. (See Section 2.11)

- **Impact:** Greenhouse gas production will be decreased as a result of the Project.

Mitigation Measures:

-The Project is applying to become a voluntary carbon credit mechanism project.

2.8 What are the potential negative impacts of the Project and what are their mitigation measures?

During the Construction Phase:

- **Impact:** Air quality can be impacted as a result of emissions from construction activities and transportation. These include PM₁₀, SO₂, NO_x, and VOC.

Mitigation Measures:

-Periodic maintenance of construction equipment will be conducted.

-Dust will be suppressed by street sprinklers.

-Relevant Management Plans/Procedures (E.g. Traffic Management Plan, Training) will be implemented.

- **Impact:** Noise will be produced from the construction activities such as the construction of roads and the transportation of materials.

Mitigation Measures:

-Periodic maintenance of construction equipment will be conducted

-Relevant Management Plans/Procedures (E.g. Traffic Management Plan, Training) will be implemented.

- **Impact:** Water to be used for the Project will be supplied by tankers from the nearest settlement. This could lead to complaints of excessive water use during the construction phase.

Mitigation Measures:

-The necessary permits to purchase this water supply will be obtained and permit obligations will be carried out.

- **Impact:** Wastewater will be produced from the camp site. If it is not disposed of properly, it can be a source of pollution.

Mitigation Measures:

-Septic tanks will be used to collect the wastewater during both the construction and operational phase.

-The wastewater collected in the septic tanks will be collected by the respective municipality to be disposed of properly.

- **Impact:** Biological components such as flora and fauna may be impacted by two different factors, namely, land disturbance and dust and noise impacts (discussed above).

Mitigation Measures:

-General mitigation measures have been defined in detail in the Landscape Rehabilitation Report, the Ornithological Ecological Assessment Report and the Bird Monitoring Report. An example of such a measure is minimizing the amount of land disturbed.

-Collection of additional baseline data was started in March, 2018 to monitor the impacts of the Project and the changing seasons. Mitigation measures will be adapted as required in the light of the findings from these field studies.

- **Impact:** There are no cultural heritage items identified in the Project Study area; however, there may be chance finds.

Mitigation Measures:

-A Cultural Heritage Management Plan (including a Chance Find Procedure) will be implemented.

- **Impact:** Socially and economically speaking, there are some negative impacts including the restricted access to agricultural land (impacts on livelihood resources) during the construction of the turbines and powerlines, and some land appropriation is required.

Mitigation Measures:

-Local procurement and employment will be prioritized.

-Management plans/procedures including a Land Acquisition Assessment and Risk Analysis Procedure, an Expropriation and Land Acquisition Process, and others, will be implemented. Land acquisition is further discussed in Section 2.10.

-Corporate Social Responsibility Programme will be implemented. (See Section 4.0)

- **Impact:** Community Health and Safety can be negatively impacted by the increased traffic load, unauthorized site access, potential communication problems between community members and workers, and dust and noise impacts (as discussed above).

Mitigation Measures:

- Relevant Management Plans/Procedures (E.g. Traffic Management Plan, Training) will be implemented.

-The Grievance Mechanism Procedure will be implemented. (See Section 5)

- **Impact:** Occupational Health and Safety is an issue within the construction site. Risks associated with this construction site include activities of working at heights and lifting operations.

Mitigation Measures:

-Occupational H&S Policies/Plans/Procedures/Instructions, an Emergency Response plan, and a Traffic Management Plan will be implemented.

-Training will be provided.

- All activities will be supervised.*
- Emergency drills will be carried out.*
- All accidents/incidents will be reported and investigated.*
- All suggestions/complaints will be reported and acted upon as per the Grievance Mechanism Procedure.*
- Site inspections will be conducted regularly.*

During the Operational Phase:

Dust, visual impacts, water consumption, and wastewater production are not foreseen as sources of negative impacts during the operational phase. The following are the foreseen impacts.

- **Impact:** Biological components such as fauna (birds and bats) may be impacted by the WPP (especially by the turbines).

Mitigation Measures:

-General mitigation measures have been defined in detail in the Landscape Rehabilitation Report, the Ornithological Ecological Assessment Report and the Bird Monitoring Report. An example of such a measure is painting the turbines a matte colour and tipping them in orange.

-Collection of additional baseline data was started in March, 2018 for birds and were started in May, 2018 for flora and other fauna (bats) to monitor the impacts of the Project and the changing seasons. It was determined that the WPP location is not on any major migration route. However, monitoring is ongoing to obtain additional data to prepare a Bird Collision Risk Assessment. The outputs of the Bird Collision Risk Assessment will be used to develop other mitigation measures.

-See Section 2.9 for more details.

Impact: While there are no cultural heritage items identified in the Project Study area, there may be chance finds during any phases of the Project.

Mitigation Measures:

-A Cultural Heritage Management Plan (including a Chance Find Procedure) will be implemented.

- **Impact:** Shadow Flicker and Blade/Ice throw could be potential hazards on community health and safety. In order to determine potential impacts, the software “windPRO”, a modelling program, was used and the minimum setback distance was calculated.

Mitigation Measures:

- An ice throw risk management strategy will be implemented.
- Minimum setback distances will be implemented as determined per the WindPRO models.
- Care will be taken to ensure all design parameters are implemented correctly.
- Turbines will be maintained regularly.
- Turbines will be equipped with ice detectors to control blade-heating systems.
- Unauthorized access to the turbines will be prevented.

- **Impact:** Noise will be produced from the operation of the turbines.

Mitigation Measures:

- A Noise Assessment was performed by the consultation firm Hidrotek Mimarlık Mühendislik Tic. Ltd. Şti. and calculations were made within the scope of the Project Description File. The closest settlement to a turbine is located approximately 3.1 km from the current turbine locations, no impacts are expected. However, to ensure this is the case, regular monitoring of noise levels at sensitive receptors will take place.
- Periodic maintenance of the turbines will be conducted.
- Relevant Management Plans/Procedures (E.g. Traffic Management Plan, Training, monitoring) will be implemented.
- Further mitigation measures will be implemented in case non-compliances are observed during monitoring.

- **Impact:** Community health and safety could be negatively impacted in the event of a rotor blade failing, and detaching from the turbine.

Mitigation Measures:

- Minimum setback distances will be implemented as determined per the WindPRO models.
- Care will be taken to ensure all design parameters are implemented correctly.
- Turbines will be maintained regularly.
- Unauthorized access to the turbines will be prevented.

- **Impact:** Occupational Health and Safety issues will likely only be of concern during the maintenance of the turbines.

Mitigation Measures:

-Occupational H&S Policies/Plans/Procedures/Instructions, an Emergency Response plan, and a Traffic Management Plan will be implemented.

-Training will be provided.

-All activities will be supervised.

-Emergency drills will be carried out.

-All accidents/incidents will be reported and investigated.

-All suggestions/complaints will be reported and acted upon as per the Grievance Mechanism Procedure.

-Site inspections will be conducted regularly.

2.9 How will birds be protected?

The Denizli Project is not located on any major migratory routes. However, bird casualties are still imminent. As a result, ornithologists are currently preparing a “Bird Collision Risk Assessment” with regard to the Project. This assessment will help Project officials understand just how large of an impact the turbines will have with respect to bird collisions. Mitigation measures such as painting the blades in a matte finish and painting the tips orange will be taken by Akfen.

According to the results of the Bird Collision Risk Assessment additional mitigation measures will be employed.

During the operational phase of the Project, any carcasses of flying fauna, such as birds or bats, will be collected by Akfen experts and documented. Numbers will be tracked to determine the efficiency and effectiveness of any mitigation measures implemented and to define additional measures, as necessary.

2.10 How will land acquisition take place?

The land acquisition was completed for wind power plant Project area. Expropriation procedures for private land are carried out as per the Expropriation Law no 2942. Urgent expropriation as per the Article 27 of the Expropriation Law was implemented during expropriation process of private lands. The expropriated private land for the WPP was used for agricultural purposes only, in part as these areas are located on the high slope areas not favourable for agricultural activities. The land acquisition details of the Project are shown in table below.

The land acquisition process for the powerline route has yet to commence. Now that the EIA positive decision has been reached, the land acquisition process can begin.

Table 3: Project Land Acquisition Requirements

Denizli Project Area	Private Land (m ²)	Forest Land (m ²)	Treasury Land (non-registered land) (m ²)	Pasture (Treasury) Land (m ²)	Total (m ²)	Comments
Turbine Locations, including the switchyard	25,265.00	153,800.00	168,106.00	0	347,171.00	Completed
Access roads	22,932.00	27,000.00	181,111.00	0	231,043.00	Completed
Powerline easement	159,721	466,000.00		0	625,721.00	Ongoing
Powerline expropriation for pylon erection	2,886	0.00	112,058.00	2,723.00	117,667.00	Ongoing
TOTAL					1,321,602.00	

2.11 How many personnel will be employed in the Project?

It is planned to employ 50 people for the field preparation and construction process and 10 people for the operational phase. The Project has set the local employment targets and will prioritize local applicants during recruitment.

3.0 HOW WILL AKFEN ENGAGE WITH STAKEHOLDERS?

A Stakeholder Engagement Plan (SEP) has been prepared for the construction and operational phases of the Project in line with the EBRD PR 10 requirements. The SEP identifies target groups and the specific range of engagement activities required for each group.

Akfen has the overarching goal of developing sustainable relations with stakeholders through the life time of the Denizli WPP and therefore will continue to engage stakeholders through various activities as detailed in the Stakeholder Engagement Program.

Akfen will provide transparent informative material in a consistent and timely manner to the affected communities and the remaining stakeholders. The tools and the methods to be used for the information disclosure during construction and operation of the Project are as follows:

- Internet/Website (<http://www.akfenren.com.tr/>)
- Information Sheets (to be available at website, construction office and Mukhtar office)
- Information dissemination meetings which will be announced to stakeholders 1 week prior to any meeting.

Initial engagement methods have been in the form of meetings and interviews. Akfen authorities or consultants for Akfen have gone to the affected communities to consult with the local stakeholders. These methods will continue during the construction and operational period. Construction and Operational managers of the Denizli WPP Project will maintain regular dialogue with the local Mukhtars of the affected settlements. Identified public institutions that are stakeholders will be visited directly periodically and correspondences will be made, as deemed necessary.

Information dissemination meetings will be open to the entire public and will be announced through local media. Furthermore, they will be held at the local village Mukhtar offices. Other venues frequented by women will also be utilized for women only meetings.

As the Project progresses, additional methods of communication will be employed via the Akfen website and various means of public media.

4.0 HOW WILL THE PROJECT SUPPORT COMMUNITY DEVELOPMENT?

It is Akfen's policy to develop a community involvement program for each of its power plants at least once a year. "Evde Okullu Olduk" social responsibility project is implemented in all enterprises of Akfen Renewable Energy.

Akfen will establish a Corporate Social Responsibility (CSR) Programme where a social responsibility project is completed at least once a year. The budgets for said projects have been laid out with the following allocations:

- An initial budget of 70 K USD for 2018;
- Approximately 40 K USD per annum with a flexibility to distribute according to the needs of the local communities around the projects; and
- Each site needs to receive some funding every 2-3 years.

The CSR Programme will be administered centrally and reported to the Lenders.

The CSR will include the development of a local action plan and interaction with the local community and support for local development projects (opportunities of beehiving projects will be specifically evaluated). A summary of the CSR program will be made available locally in local press and on the Akfen web site.

As the construction of the Denizli Project has yet to commence, no social responsibility projects have been carried out yet.

Some of the social responsibility projects that Akfen has completed can be viewed at: <http://akfenren.com.tr/kurumsal-sorumluluk/sosyal-sorumluluk/sosyal-sorumluluk-projeleri>

5.0 HOW CAN I RAISE A COMPLAINT OR ASK A QUESTION?

Akfen has established a grievance mechanism which is available for every stakeholder to use, both internal and externally. Any comments or concerns can be brought to management attention either verbally or in writing (by post or e-mail) or by filling in a grievance form (an example is included in Appendix-1). Through that mechanism Akfen will respond to and resolve the issues raised.

In order to ask a question, to make a comment or a complaint, stakeholders may also reach out to the General Directorate and Operations' Formal Communication department by using following contact information. All questions, comments and complaints should be initially fielded to Mr. Burak Solmaz.

Akfen Renewable Energy Company Headquarters

Address: İlkbahar Mahallesi Turan Güneş Bulvarı Galip Erdem Cad. No:3
Çankaya Ankara – Turkey

T: +90 312 408 08 10 (For English)

T: +90 312 408 14 00 (For Turkish)

info@akfenren.com.tr

APPENDIX – 1 AKFEN INTERNAL GRIEVANCE FORM



Recommendation/Complaint Form



Name Surname

Department

Date

Notice Type

HAZARD

If you think there is hazardous situation in the work site that could hurt you or your colleagues please fill out this form!

NEAR MISS

If you think there was a near miss accident where you were nearly hurt, or even nearly killed, fill out this form in detail and send it to the OHS department!

RECOMMENDATION

Send your recommendations regarding Occupational Health and Safety of the facility, working conditions, etc. to the Department of Human Resources!

COMPLAINT

Send your complaints regarding Occupational Health and Safety of the facility, working conditions, etc. to the Department of Human Resources

Comments:

Don't forget, the forms that you have filled out will be taken into consideration by the Human Resources and the Occupational Health and Safety Departments that will try to prevent similar hazards from harming you and your colleagues by taking the necessary precautions/mitigation measures!



WRITING YOUR NAME IS OPTIONAL!

APPENDIX – 1 AKFEN EXTERNAL GRIEVANCE FORM

A- General Information	
Grievance/Request Form Record No: <i>(It should be same with the number on grievance/ request admittance form)</i>	
Record Keeping Person:	
Date:	
B- Concluding Grievance/ Request	
<p><i>This section shall be filled out and signed by the party that filed a complaint/request and the Akfen/Korda Authority when the file is closed. In this section, information about how the grievance has been resolved or how the request has been met will be given; remarks stating that an agreement has been struck with the grievance/ request owner and signature should be included, if such an agreement has been made. If no agreement has been made, but the issue has been closed, Akfen/Korda authorities must state as such and sign.</i></p> <p><i>(Replies to the grievances received via internet will be expected by e-mail instead of signature)</i></p> <p>Remarks:</p>	
<p>Date:</p>	
Name- Surname and Signature of Grievance/ Request Owner	On Behalf of Akfen/Korda Title- Name- Surname and Signature