Gold Standard
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TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

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VERSION **v. 1.2**

RELATED SUPPORT

- **TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2**

This document contains the following Sections

KEY PROJECT INFORMATION

GS ID of Project	GS437
Title of Project	Keltepe Wind Farm Project,Turkey
Time of First Submission Date	02/05/2022
Date of Design Certification	18/09/2009 CP2 Renewal Design Review
Version number of the PDD	0.4
Completion date of version	18/11/2022
Project Developer	Alize Enerji Elektrik Üretim A.Ş. Çağla Balcı Eriş-Rüzgar Danışmanlık
Project Representative	Çağla Balcı Eriş-Rüzgar Danışmanlık
Project Participants and any communities involved	Alize Enerji Elektrik Üretim A.Ş.-Çağla Balcı Eriş-Rüzgar Danışmanlık
Host Country (ies)	Turkey
Activity Requirements applied	☐ Community Services Activities X Renewable Energy Activities (GS4GG) ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	-
Methodology (ies) applied and version number	Sectoral Scope 1, category "Energy industries (renewable - / non-renewable sources)" and ACM0002: Grid connected electricity generation from renewable electricity generation - Version 20.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Table 1 – Estimated Sustainable Development Contribution

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
13 Climate Action (mandatory)	Emission Reduction	46,302 tCO2/year	VERs
7 Affordable and Clean Energy	Generating Clean Energy	71,366.095 MWh	
8 Decent Work and Economic Growth	Employment	7 people	

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

The Keltepe Wind Farm Project, (hereafter referred to as the Project) involves the development of a 20.7 MW onshore wind farm located in the Balıkesir province, Susurluk district in Turkey. The Project involves the installation of 23 turbines and the development of a medium voltage transmission line between the proposed project area and the national grid. With a total installed power generation capacity of 20.7 MW, the project is estimated to supply grid as 72,232 MWh and 46,501 tCO_2-eq per annum and which total to reduction of 325,507 tCO2-eq over these first 7-year crediting period according to registered first PDD for CP1.

The Project aims to generate electricity from wind energy and feed it to the national electricity grid.

The project is estimated to supply grid as 71,366.095 MWh[1] and expected annual emission reductions of the project is approximately 46,302 tCO_2/year during for this 2nd crediting period.

The Project Proponent has been granted a 49-year generation license by the Turkish Energy Market Regulatory Authority for the proposed Project under the provisions of Law No. 4628 governing the electricity market in the Republic of Turkey.

The purpose of the project activity is to produce renewable electricity using wind as the power source and to contribute to Turkey is growing electricity demand through a sustainable and low carbon technology. The project displaces the same amount of electricity generated by the grid dominated with fossil fired power plants.
The project activity produces positive environmental and economic benefits through the following aspects:

[1] The average value of Keltepe WPP's electricity generation between 2010 and 2021.(12 years). The related excel file has been provided to the VVB

- Displacing the electricity generated by fossil fuel fired power plants by utilising the renewable resources so as to avoid environmental pollution and GHG emissions,
- Contributing the economic development of the region by providing sustainable energy resources,
- Increasing the income and local standard of living by providing job opportunities for the local people.
- Production of pillar and other equipment in Turkey indirectly cause the know-how transfer and empower the local industry.

The project area belongs to the Ministry of Environment and the proposed project activity has been the installation of a grid-connected renewable power plant/unit. In the absence of the project activity, the electrical energy would have been delivered to the grid through a mix of existing power generation resources.

The project's capacity was increased to 29.9 MW from 20.7 MW in 2017. PP can use only 20.7 MW capacity's electricity generation. And the PP can use the ratio for metering. For this, the ratio between the electricity generations of 29.9 MW and of 20,7 MW capacities; namely, the ratio between the actual electricity generation of the initial (existing) capacity against the electricity generation of the total capacity will be calculated:

The net electricity supplied by the Wind Farm (including the existing and additional capacity) to the national grid is measured by TEİAŞ metering devices. As well, the electricity generation of each wind energy converter (wind turbine) under Keltepe Wind Farm Project(the existing capacity and added capacity) is been measured continuously with a SCADA system. Using the SCADA data, the total amount of electricity generated from the existing capacity under the proposed project activity and the added capacity has been measured on monthly basis and has been used to calculate the ratio of electricity generation. By applying this ratio to net electricity amount supplied to the national grid, the emission reduction project GS437 under the project activity will be calculated.

Formulation: The following equation will be used to calculate the the quantity of net electricity generation supplied to the grid by the project plant that has been added under the project activity:

$EGpj,y = EG_{facility,y} * EG_{RATIO,y}$

Where:

$EG_{PJ,y}$= Design Certified Quantity of net electricity generation(20.7 MW) supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/yr)

$EG_{facility,y}$ = Quantity of total net electricity generation supplied to the grid in year y by the facility (capacity addition and the existing capacity) and measured by the TEİAŞ meters (MWh/yr)

$EG_{RATIO,y}$= Ratio between electricity generation of the plans/units of the Project Activity (20.7 MW) and the total gross generation of the 29.9 MW facility in year y (%) calculated as per SCADA.

A.1.1. Eligibility of the project under Gold Standard

- **The project activity meets the eligibility criteria of GS4GG Principles & Requirements document as described below.**The project applies methodology ACM0002 Version 20.0, which is an approved methodology under Gold Standard.

- The project type is wind which is an eligible project type as it is in accordance with Eligible Project Types & Scope under Renewable Energy Activity Requirements.

- The project activity results in displacement of electricity from thermal power stations while contributing to sustainable development of Turkey. Hence, the project contributes to the Gold Standard vision and mission.

- Wind is an approved project type and does not require approval from Gold Standard.

- This project activity is not associated with geo-engineering or energy generated from fossil fuel or nuclear, fossil fuel switch, nor does it enhance or prolongs such energy generation.

General Eligibility Criteria under Renewable Energy Activity Requirements

Project Type: Wind, As discussed above, the project type is eligible.

Project Location: The project is in Susurluk district of Balıkesir province, Marmara Region of Turkey. Thus, the project is eligible.

Project scale: The project activity is a 20.7 MWm/20.7 MWe Wind power plant and thus qualifies under large scale projects.

Keltepe Wind Farm Project is in compliance with GS safeguarding principles. This project outcomes are real validated and verified by approved bodies. Additionality is demonstrated as per the applicable tools and methodologies Stakeholders have involved in project implementation and planning during local consultation meetings and feedback round.

The project does not claim green or white certificates or equivalents that may result in double counting as a result of carbon dioxide emission reduction purposes. Project is not registered and also will not benefit from other certification schemes or renewable energy labelling standards.

The host country as Turkiye has no cap on GHG emissions, the GS VERs don’t need to be backed up by allowances or other denominated units resulting in local authorities stating that an equivalent amount of allowances will be retired to back up the GS VERs

issued. The project will be registered and seek approval from the national registry on GHG emission reduction projects as regulated by Communique on Procedures for Registration of Greenhouse Gas Emission Reduction Projects[1].

There is no potential for double counting of impacts if the project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature.

The project is in compliance with Turkey's legal, environmental, ecological and social regulations.

The project fits into 'Renewable Energy Supply' category as defined generation and delivery of energy services from non-fossil and non-depletable sources as wind being one

The project activity complies with Gold Standard and UNFCCC eligibility criteria as reducing carbon dioxide emission that is mainly produced by the Turkish Grid dominated by fossil fuel power plants.

A.1.2. As Turkey being a part of the DAC list of ODA Recipients of OECD[2], a written declaration of non-ODA for the project activity has been submitted. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

The project participant is Alize Enerji Elektrik Üretim A.Ş. is the legal owner of the project and has the legal rights for the credits.

Generation license issue by EPDK (EMRA-Energy Market Regulatory Authority) gives the rights to install and operate wind power plant in the defined site to project owner which is Alize Enerji Elektrik Üretim A.Ş. Legal right for installation of WTGs and generating electricity on project site has defined by local regulations and secured by generation license as defined above. Land for the project has been leased from the government for the generation license period as per the local regulations.

Rüzgar Danışmanlık act as carbon consultants for the Project. Contact details are provided in Annex 1.

A.2 Location of project

The Keltepe Wind Farm Projectis located in Susurluk district of Balıkesir province, Marmara Region. Location of Turbine T12 (approximate mid-point of the wind farm site) located in the map above is 39057' N 28002' E.

Please see below the maps showing the location of the project activity in TurkeyFigure 1 The location of the project activity in Marmara Region, Turkey

The nearest place is Kiraz village from Keltepe Wind Farm Project.

Figure 2 Satellite image of the project area

Table 2 Turbine Coordinates[2]

	E	N
T1	5 90 125	44 23 594
T2	5 90 045	44 23 643
T3	5 89 955	44 23 675
T4	5 89 870	44 23 702
T5	5 89 787	44 23 731
T6	5 89 783	44 24 008
T7	5 89 704	44 24 052
T8	5 89 599	44 24 114
T9	5 89 508	44 24 156
T10	5 89 418	44 24 198
T11	5 89 345	44 24 237
T12	5 89 272	44 24 303

	E	N
T13	5 89 212	44 24 388
T14	5 89 133	44 24 439
T15	5 89 053	44 24 489
T16	5 88 974	44 24 539
T17	5 88 885	44 24 575
T18	5 88 814	44 24 639
T19	5 88 735	44 24 689
T20	5 88 663	44 24 741
T21	5 88 590	44 24 794
T22	5 88 518	44 24 848
T23	5 88 445	44 24 903

[2] Generation License

A.3 Technologies and/or measures

The Project Activity involves the generation of renewable energy from wind. It thereby displaces grid electricity that is partly generated from fossil fuel fired power plants. The wind-driven blades are connected to an electricity generator, which produces electrical energy and supplies it to the grid without storage. Within the scope of the project, all precautions have been taken for the environment during the design phase and the project has been implemented in line with the environmental law and related regulations.

Enercon, a German turbine manufacturer, has been selected as technology provider due to the quality of its products in terms of high reliability, grid friendliness, low maintenance requirements and low noise levels. The turbines have been delivered from Germany to the project site. Blades and masts have been produced in Turkey.

The Project have been composed of gearless, variable speed, variable pitch control wind turbines with a total installed capacity of 20.7 MW. The Project includes 23 units of E44 turbines with an output of 900 kW and rotor diameter of 44 m.

This Keltepe WPP has been connected to the 34.5 kV medium voltage transmission line Göbel transformer station. The metering has been done at substation before electricity is fed into the grid.

The Project reduces greenhouse gas emissions by displacing electricity from grid connected fossil fuel fired power plants, thereby contributing to climate change mitigation along with other environmental benefits. The lifetime of the project activity has been supposed as 25 years.

The main equipment used in the Project is wind turbines with the following specifications.

Table 3: Technical specifications of the Enercon E44 turbines[3]

Parameter	Value
Rated Power	900 kW
Rotor Diameter	44 m
Number of blades	3
Swept Area	1,521 m2
Hub Height	45/55m
Rotor Speed	34.0 U/min
Generator Type	Synchronous
Cut in wind speed	3 m/s
Cut out wind speed	34 m/s

[3] https://en.wind-turbine-models.com/turbines/531-enercon-e-44

The amount of electricity generated by the project is not influenced by factors outside the project boundary such as other power plants or demand for electricity. Rather, the governing factor is the wind speed at the project site.

PLF in case of wind energy has bern calculated as follows: 1.In case of past period: The data such as actual power geerated in a year and the capacity of a particular wind mill will determine the PLF.

Plant Load Factor is the ratio of the actual output of a power plant over a period of time and it's output if it had operated a full capacity of that time period.

Plant Load Factor = Gross Generation / (Installed Capacity * Number of Hours) For this project, plant load factor is %39.34 as below:

PLF= 71,366.095 / (20,700*8,760) *100=%39.35

All requirements and specifications of the meters have been done according to Communique on the counter to be used in the Electricity Market by Energy Market Regulatory Authority on 22/04/2011.

A.4 Scale of the project

This is large scale project.

A.5 Funding sources of project

The project activity does not have any public funding or Official Development Assistance (ODA) funding.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

The project applies CDM-EB approved "ACM0002: Grid-connected electricity generation from renewable sources - Version 20.0"[4]
The methodology refers to:

- "Tool for the demonstration and assessment of additionality", Version 07.0.[5]
- "Combined tool to identify the baseline scenario and demonstrate additionality", Version 07.0[6]

[4] https://cdm.unfccc.int/filestorage/A/G/0/AG07ZJQ3EXD42LT5YV9HR16M8KINPO/EB105_repan03_ACM0002.pdf?t=cG58cXR0YmdpfDBPAQ9cKPQ77zmZZIilanUw
[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf
[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v7.0.pdf

- "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version 03.0[7]
- "Tool to calculate the emission factor for an electricity system", Version 07.0.[8]
- "Tool to determine the remaining lifetime of equipment", Version 01[9]
- Tool 11 "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" Version 3.0.1[10]

B.2. Applicability of methodology (ies)

- The methodology ACM0002 "Large scale Consolidated baseline methodology for grid-connected electricity generation from renewable sources" is applicable to grid-connected renewable power generation project activities that a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield); b) involve a capacity addition c) involve a retrofit of (an) existing plant(s); or d) involve a replacement of (an) existing plant(s).
- Since the proposed project activity install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield), ACM0002 "Large scale Consolidated baseline methodology for grid-connected electricity generation from renewable sources " version 20.0. is applicable.
  The choice of methodology ACM0002/Version 20.0 is justified as the proposed project activity meets relevant applicability criteria

The applicability criteria and conditions may be seen in more detail as below:

Table 4: Applicability of ACM0002 Version 20.0

Applicability Condition	Justification
This methodology is applicable to project activities that: a) Install a Greenfield power plant; b) Involve a capacity addition to (an) existing plant(s); c) Involve a retrofit of (an) existing operating plants/units; d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or	The project activity involves installation of a power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity. The proposed project activity is a greenfield project activity.[11]

[7] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v3.pdf
[8] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[9] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf
[10] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf

[11] EMRA Generation License

e) Involve a replacement of (an) existing plant(s)/unit(s).	
The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, wind power plant/unit, wave power plant/unit or tidal power plant/unit.	The project activity is the installation of 23 wind turbine generators (WTGs). Hence, meets this criterion.
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, wind, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The project activity does not involve capacity additions, retrofits, rehabilitations or replacements. Hence this criterion is not applicable to the project activity.
In case of hydro power plants, one of the following conditions shall apply: a)The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7), is greater than 4 W/m2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is	This condition is not applicable to the project activity as it does not involve the installation of a hydro power plant.[12]

[12] The Generation License for 49 years obtained for WPP from Electricity Market Regulation Authority (EMRA)

greater than 4 W/m2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m2, all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (8),is greater than 4 W/m2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	
In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific	The project activity is not a hydro power plant. Hence this applicability criterion is not relevant to the project activity.

scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	
The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units	Project activity does not involve: • Switching from fossil fuels to renewable energy sources at the site of the project activity. • Biomass fired plants. Hence this criterion is not applicable.
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance."	The project is not a retrofit, rehabilitations, replacements or capacity addition; hence this applicability criterion is not relevant.
In addition, the applicability conditions included in the tools referred to above apply.	Applicability conditions of the applied tool are justified.

From the above it is concluded that the project activity meets all the applicability conditions of the methodology ACM0002 version 20.0 "Grid connected electricity generation from renewable sources".

The project activity also meets the following applicability conditions of "Tool to calculate the emission factor for an electricity system".

Applicability Conditions of "Tool to Calculate The Emission Factor For an Electricity System" for Keltepe WPP as follow :

SI No	Applicability condition	Applicability to this project activity
1	This tool may be applied to estimate the OM, BM and/or CM when	The project activity substitutes grid electricity by supplying renewable

	calculating baseline emissions for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	power to grid. Hence this criterion is applicable.
2	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project electricity system is not located in an Annex I country.

The project activity also meets the applicability conditions given in "Tool for the demonstration and assessment of additionality".

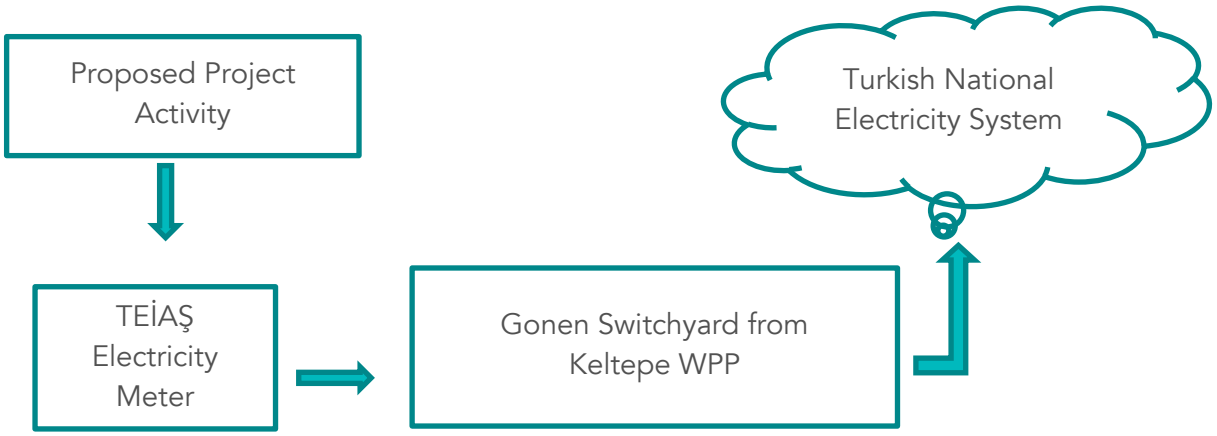
The project activity also meets the applicability conditions given in "Tool to determine the remaining lifetime of equipment" This tool is used to determine the remaining lifetime of baseline or project equipment. Average lifetime of turbines is assumed as 25 years.

Other tools mentioned in the methodology are not applicable for this project activity

B.3. Project boundary

The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system. The greenhouse gasses and emission sources are defined for the project activity and the baseline scenario. As a result, the project boundary for Keltepe Wind Farm Project is as demonstrated in the figure below:

Figure 3: Project Boundary



In addition, please see the justification of the given project boundary in the table below:

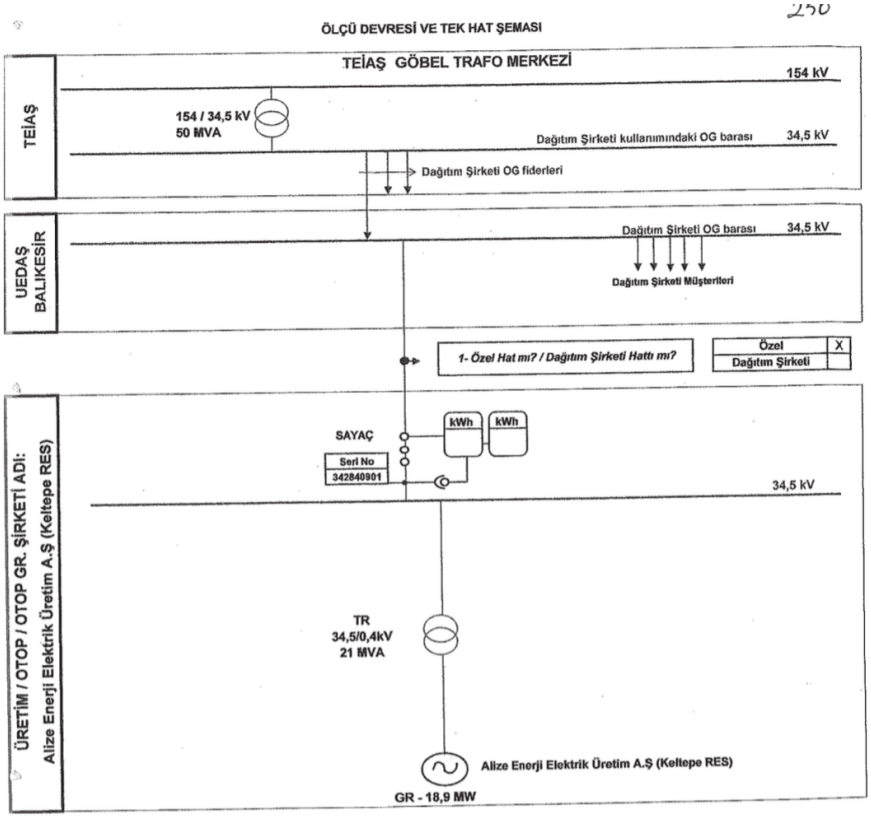
Table 5: The greenhouse gases and emission sources

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	CO_2 emissions from electricity generation in fossil fuel fired power plants that are replaced due to the project activity	CH_4	No	The major source of emissions in the baseline
		N_2O	No	The minor emission source in the baseline.
		CO_2	Yes	Main emission source. The dominant emissions from power plants are in the form of CO2, therefore CO2 emissions from fossil fuel fired power plants connected to the grid is considered in baseline calculations.
Project scenario	Construction and operation of the project activity	CO_2	No	Minor emission source. The project activity has a diesel generator, however the use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected as per the applicable methodology. As suggested by the baseline methodology, project emissions (PEy) are assumed to be 0 and it is not considered
		CH_4	No	
		N_2O	No	

Potential leakage emissions in the context of power sector projects are emissions that arise from the project activities such as power plant construction, fuel handling and land inundation. According to ACM0002 / Version 20.0, such emissions do not need to be taken into account.

The following figure represents the line diagram of the project activity:

Figure 4 Line Diagram of Keltepe Wind Farm Project



The scheme shows the connection points of Keltepe Wind Farm Project with the national grid. The wind farm is connected to Göbel transformer station on 154 kV high voltage level. Two electricity meters are installed at Keltepe WPP. These meters are working in parallel.

B.4. Establishment and description of baseline scenario

The project applies for a renewal of the crediting period under the requirements of The Gold Standard Foundation so the Methodological Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period", Version 03.0.1 has been applied to demonstrate that the baseline of the project is still valid.

The Tool consists of two steps:

Step 1: The "Procedures for the renewal of the crediting period of a registered CDM project activity" approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies.

The Project baseline is the "grid-connected electricity generation from renewable sources". The Project is still in compliance with Electricity Market Law with Number 4628 and dated 03/03/2001 and Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy with Number 5346 and dated 18/05/2005

(currrent legal framework, all required relevant regulations and laws). There is no changes or revision of these laws and legislation.

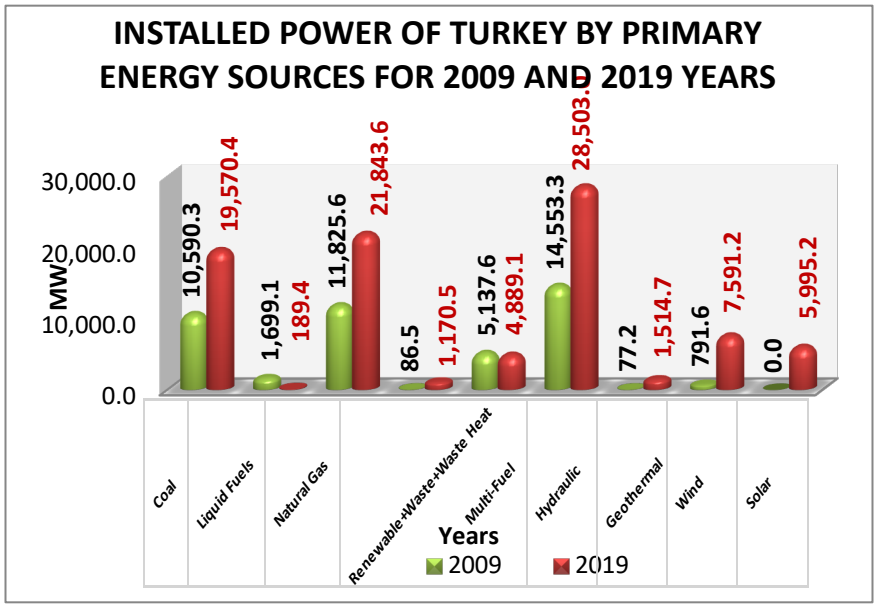
The conclusion is that the baseline of the project activity complies and will continue to comply with the laws and regulations in the sector for the next crediting period.

Step 1.2: Assess the impact of circumstances

The conditions used to determine the baseline emissions in the previous crediting period are still valid.

The electricity generation is predominantly composed by fossil fuel fired power plants in Turkey. The share of resources in the electricity generation in Turkey may be seen in Figure 5[13].

Figure 5: The share of resources in the electricity generation

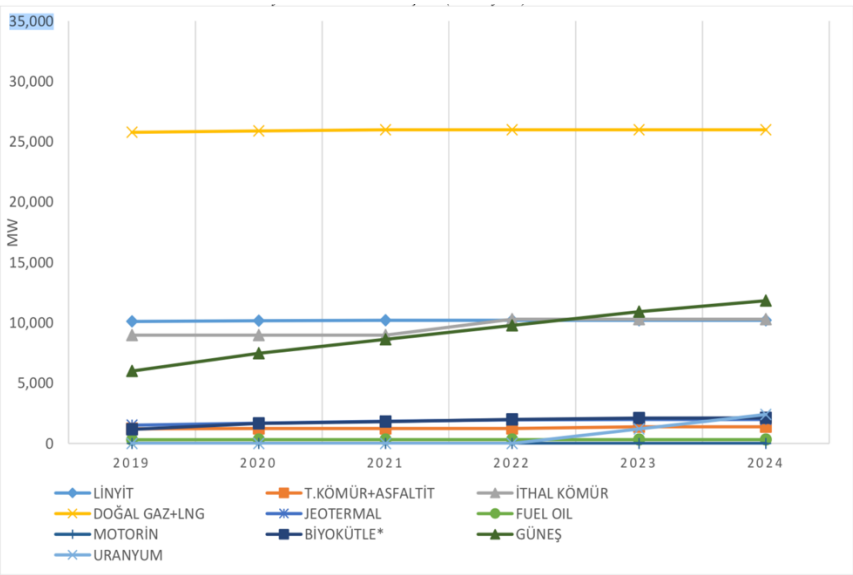


As per the 5-year capacity projection of UEDAS (Turkish Electricity Transmission Distrubition Company), it is obvious that fossil fuels would continue being the main sources for electricity generation (approximately 62% in 2024). High growth rate of energy demand is forecasted to continue over coming decade. Fossil fuels will be dominant in the electricity generation mix, with an expected share of 62% in 2024. Renewables including wind energy would have a limited share of then 38 %. For this reason, main part of the new capacity will be fossil fuel based.

Figure 6 Capacity projection, 2019-2024[14]

[13] https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri

[14] https://www.teias.gov.tr/tr-TR/ilgili-raporlar



Turkey as an advanced developing nation has looked at dealing with energy security by developing and constructing high capacity coal and natural gas power plants. The development of thermal power plants has been also encouraged by the large natural resource availability in Turkey, especially the abundance of economically accessible lignite.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

The same circumstances are valid for the price of electric energy.

The baseline scenario identified at the validation of the project activity was the continuation of grid-connected electricity generation from renewable sources. Under this scenario, no investment from the project's proponent or third party (or parties) has been envisioned later specifically for the project. Thus, this step in not applicable.

The technicahal lifetime of turbine is 25 years and there is no changes about their technology.

There is no change in investment and technology affecting project implementation so related conditions used to determine the baseline emissions in the previous crediting period are still valid.

Step 1.4: Assessment of the validity of the data and parameters

The emissions reduction calculations are based on two main parameters: the energy produced and the grid emission factor.

Since the energy generated under the project activity is monitored, only the grid emission factor should be updated for the purpose of the crediting period renewal.

The emission factors and values for the calculation of the baseline emissions have been determined for the whole crediting period and parameters not monitored have been changed. Therefore, Step 2 has been applied.

According to the methodology, baseline scenario was identified as "the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources".

Step 2: Update the current baseline and the data and parameters.

Step 2.1: Update the current baseline

As confirmed in Step 1, under the current context of the sectoral policies and circumstances, the project baseline for the next crediting period is the use of electricity from the national grid. This is conform to the provisions of the latest version of the approved applicable methodology to the project activity namely: ACM0002 version 20.0, "Large-scale Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

Step 2.2: Update the data and parameters

The grid emission factor has been updated according to the version of the tool: Tool to calculate the emission factor for an electricity system (Version 07.0).

According to tool three options has provided. The PP has used Option 1 of Paragraph 17 for national EF by Turkish Republic Ministry of Energy as 0.6488.

B.5. Demonstration of additionality

The local stakeholder consultation meeting was organized on 22/10/2007 in Municipality wedding building of Susurluk, Susurluk district of Balıkesir province before as it is before the construction of the plant. In addition to this, during the financial analysis done for the investment decision, the VER revenue has been taken into account. Everything is still same as registered capacity project related with additionality assessment during the CP renewal process. Because the increase capacity has not added in the project boundary.
Time schedule of the project activity may be seen in in table 6 as followed:

Table 6: Time schedule of the project activity

Event	**Actual / Expected**	**Date**
Start of construction	Actual	01/07/2008
Start and End First crediting period	Actual	10/07/2009-09/07/2016
Gold Standards registration of Project Activity	Actual	18/09/2010
First monitoring period	Actual	10/07/2009-28/02/2010

Second Monitoring Period	Actual	01/03/2010-30/04/2011
Third Monitoring Period	Actual	01/05/2011-30/04/2012

As required in the Gold Standard Voluntary Emission Reductions Manual for Project Developers, the project additionality is demonstrated through use of the "Tool for the demonstration and assessment of additionality" (version 04).

The project activity consists of the installation of a new grid-connected renewable power plant. The respective baseline scenario would be the generation of grid-connected power, which would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

The project activity is a green field investment, which does not modify or retrofit any existing electricity generation facility. The emission factors are calculated with the recent data available at the date of PDD compilation. The additionality methodology consists of the following steps;

- Identification of alternatives to the project activity;
- Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible;
- Barriers analysis; and
- Common practice analysis

STEP 1. Identification of alternatives to the project activity consistent with current laws and regulations

This step involves the definition of realistic and credible alternatives to the project activity that can be part of the baseline scenario.

Sub-step 1a. Define alternatives to the project activity:

If the proposed project activity would not be implemented, the shareholders of Alize Enerji Elektrik Üretim A.Ş. do not have alternative investment options which generate a similar amount of electricity production as the proposed VER project activity. An alternative to the project activity therefore would be "no action" from the project participants.

Considering the above, the following alternatives have been identified, for the generation of the same amount of electricity as generated by the project activity:

Alternative A	Keltepe wind farm without VER credits
Alternative B	Same amount of electricity produced by other facilities not under the control of project participant (No action from the investors)

Outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity

Alternative B is identified as the baseline scenario, since Alternative A is not applicable, which will be further elaborated in Section B.5. According to the baseline scenario, the electricity delivered to grid will continue to be fed by a power plant portfolio, which is highly fossil fuel.

Sub-step 1b. Consistency with mandatory laws and regulations

The following applicable mandatory laws and regulations have been identified:

(1) Electricity Market Law [Law Number: 4628 Ratification Date: 20.02.2001 Enactment Date: 03.03.2001]

(2) Law on Utilization of Renewable Energy Resources for the Purpose of Generating

Electricity Energy [Law Number: 5346 Ratification Date: 10.05.2005 Enactment Date: 18.05.2005]

(3) Environment Law [Law Number: 2827 Ratification Date: 09.08.1983 Enactment Date: 11.08.1983]

All the alternatives to the project outlined in sub-step 1a above are in compliance with applicable laws and regulations.

Outcome of Step 1b: As mentioned above, if the project activity is not feasible and will not be realized, project participants do not have an alternative investment plan that would generate electricity with a comparable quality and similar amount. Alternative A cannot be considered as a plausible scenario because of financial, investment, technological and prevailing practice barriers that would prevent the project activity from being implemented, which will be further elaborated under Section B.5. Therefore, the only plausible baseline scenario to the Project is Alternative B: the continuation of the current situation without realization of the proposed Project Activity.

For the demonstration of additionality, a barrier analysis or an investment analysis, or both can be conducted. Barrier analysis is applied.

STEP 2. Investment Analysis

The Investment Analysis has not been applied.

STEP 3. Barrier Analysis

Sub-step 3a. Identify barriers that would prevent the implementation of the proposed project activity:

Implementation of the Project without the VER revenues (alternative A defined under sub-step 1a) faces barriers that prevent the realisation of this alternative. An overview of the barriers is presented in table 4. Each barrier is described in more details in the section below.

Table 4. Identified barriers for development of the project activity

Type of barrier		Identified barrier	Internal/ External
Investment	Barriers related to access to finance	Low project IRR and ADSCR	INT
		High level of financing and long pay back period	INT
		Country risk	EXT
	Barriers related to the project design	Development of grid connection	EXT
		Direct drive turbines	INT
		Transmission line fee	EXT
Technical		No Turkish manufacturers of wind turbines	EXT
		Conditions in the project site	EXT
Prevailing practice		Wind capacity constitutes a low share of the total generation capacity	EXT
Other		Bureaucratic and legislative	EXT

The major barriers that project developers have to cope with are listed below:

- Low project IRR and ADSCR
- Wind capacity constitutes a low share of the total generation capacity

Investment barriers

Part of barriers for the development of the project is related to the access to finance. The project participants had difficulties securing a loan for development of the project, for the following reasons:

- *Low project IRR and ADSCR:* The Internal Rate of Return (IRR) and Annual Dept Service Cover Ratio (ADSCR) of the project without the income from VERs wertoo low to secure project financing. The IRR of the proposed project with and without the revenues from the sale of VERs is presented in table 5 below.

Table 5. IRR comparison[10]

Project IRR	10 Years	20 years
Without VERs	n.a.	0.34 %
With VERs	-14.04	1.63 %

The additional income from VERs has increased the IRR of the project and positively affected the ADSCR (Annual Dept Service Coverage Ratio), which in consequence influenced the decision of the bank to issue the loan.

- *High level of financing and long pay back period:* Wind farms require a high level of financing and have long pay back periods compared to other investment options.
- *Country risk:* In the international markets the risk for investments in Turkey is considered as high. After an economic crisis in 2001, Turkish economy has seen a positive development. However investments in Turkey are still considered as relatively high risk investments. In early-to-mid 2006 the raise of interest rate in major industrial countries has strongly affected the Turkish economy, the

currency depreciated significantly, long-terms interest rates rose and inflation accelerated. Together with the high current account deficit, a still high public debt ratio, a large stock of rapid foreign investments and non-supportive political environment Turkey is vulnerable to a sudden stop in capital inflows11. It can be concluded that the economical and political situation has an adverse impact on the international perception of Turkey as investment country and, this is an important barrier to the Project.

Other investment barriers identified for the project are:

• Development of grid connection: The Keltepe wind farm has to be connected to the national grid via 35.4 kV Medium Voltage overhead transmission line. The project participant will have to develop 13 km of the transmission line. This investment have been covered totally by Demirer Holding. The total investment cost is approximately €520,000.

- *Direct drive turbines:* The project involves the installation of direct drive variable speed turbines supplied by ENERCON. These are more expensive compared to the common turbines; however they are of higher quality which is expressed in higher reliability, more 'grid friendly' and have a lower noise level.12.
- *Transmission line fee:* Each project that delivers electricity to the Turkish national grid is obliged to pay a 'transmission line use fee'. The amount of the fee is determined by the location of the project. For this Turkey is divided into 23 zones. The proposed project activity is located in the Susurluk District in Balıkesir Province, which is identified as zone 113. This zone has the second highest transmission line fee, namely 8,671.42 €/MWyear14, while the lowest fee is 40.29 €/MWyear. This results in extra costs for the operation of the project activity.

Technical Barriers

- *No Turkish manufacturers of wind turbines:* Currently, there are no manufactures of wind turbines in Turkey. Therefore the project participants have to import wind turbines from abroad. The transfer of the equipment results in higher operational risk and higher investments costs. Furthermore the new technology and foreign equipment requires the training of personnel for construction, operational and maintenance of the wind farm.
- *Conditions in the project site:* Due from harsh weather conditions, which occur especially between November and March, the construction works are hindered and limited. Moreover, the project site is located on the mountain ridge, at the altitude of approximately 850 m above sea level, where bedrock is crust and rocky. Thus project participant meets with obstacles during construction works.

Barriers due to prevailing practice

Wind capacity constitutes a low share of the total generation capacity: As a country whit a rapid growing economy, Turkey's demand for electricity has also been continuously growing during the past decade. In 2006 the electricity demand was 174,230 GWh with an increase of 8.3% compared to the previous year. The increase or decrease rates for electricity are presented in table 6 below.

Table 6. The energy demand and increase rates between years 1997-2006[16]

Year	Energy Demand [GWh]	% of increase
1997	105,517	11.3
1998	114,023	8.1
1999	118,485	3.9
2000	128,276	8.3
2001	126,871	-1.1[17]
2002	132,553	4.5
2003	141,151	6.5
2004	150,018	6.3
2005	160,794	7.2
2006	174,230	8.3

It is expected that on the long term the share of wind will not change and remain insignificant within the long-term projections for energy supply. In table 7 the projection of the installed capacity for Turkey until 2016 is given. The share of wind energy (including other sources of renewable energy sources) in 2016 is foreseen to be 2.8%. The majority share belongs to thermal plants with 61%.

Table 7. Projection of installed capacity balance of Turkey[18]

Energy Source [MW]	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Thermal	27,778	28,101	28,939	31,039	34,029	36,749	39,464	42,544	46,059	48,074
Hydro	13,614	14,302	15,899	18,209	20,044	21,814	23,412	24,970	26,415	27,898
Wind + other renewables	786	1,113	1,328	1,453	1,578	1,703	1,828	1,953	2,078	2,203
MW TOTAL	42,178	43,515	46,166	50,701	55,601	60,266	64,704	69,467	74,552	78,175

Note: the actual realised installed wind capacity in 2007 is 131 MW (please see table 8 below), while in the projection this was estimated as 786 MW.

A breakdown of the installed capacity is presented in table 8 below; this is based on official 2006 statistics of TEIAS.

Primary Energy Source	2006 [MW]	% of installed capacity 2006
Lignite	8,210.8	20.2
Hard + Imported Coal	1,986.0	4.9
Natural Gas	11,462.2	28.3
Fuel Oil	2,123.2	5.2
Diesel Oil	251.9	0.6
LPG	0	0
Naphtha	21.4	0.1
Solid + Liquid	471.0	0.2
Natural Gas + Liquid	2,852.4	7.0
Hydro	13,062.7	32.2
Geothermal + Wind	***81.9***	***0.2***
TOTAL	40,564.8	100

Based on the above can be concluded that wind farms constitute a small share of the total electricity generation capacity of Turkey. This results in barriers for the development of wind farms as a result of limited experience in construction and operation of wind farms.

Other Barriers

Bureaucratic and legislative:

The first wind measurements for the Keltepe Wind Farm Project were performed by Demirer Holding in 1999. However the project is planned to start in May 2008. This delay can be explained by the bureaucratic and legislative barriers the project faced:

The structural change in the energy market: On 3 of March 2001 the "Turkish Electricity Market Law20" was enacted and the structure of the electricity market changed from a monopolised market model, to a liberalised market model. In the monopolised model private companies' could participate through BOT (Built Operate and Transfer) projects, this involved low risks since the projects where after construction transferred to the state. In the current electricity market private companies can only develop BO (Built and Operate) projects within a competitive market frame, without the security of the state buying the project. The conjuncture and legal basis before 2001 (the enactment of Electricity Market Law) allowed wind farm projects to have a 20 year purchase guarantee with a fixed price. The current participation of private companies to the market is relatively weak in terms of financial attractiveness of wind projects compared to pre 2001 condition. In addition, the private companies, especially those who invest in new technologies such as wind energy, encounter delays due to the immature structure of the new electricity market.

- *Uncertainties in the market*: The legal basis of renewable energy generation, including wind energy, is laid down in the "Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy" enacted on 18 of May 2005. This law provides a guaranteed electricity price over a period of time. The enactment of this law reduced the uncertainty in payback which obstructed the private sector to invest in wind energy projects and reduced the high risk perception for wind energy projects from creditors' point of view. .
- *Political demeanour of the government:* In addition to the energy projection presented above, temporary article 2 of the newly enacted "Law on Installation, Operation and Sales of Energy of Nuclear Power Plants" (enacted on 09.11.2007) constitutes a subsidy scheme for coal fired power plants with a capacity over 1000 MW.

Sub-step 3b. Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity):

Alternative B, the same amount of electricity produced by other facilities not under the control of the project participants, is not hindered by the identified barriers.

Step 4. Common practice analysis

Sub-step 4a. Analyze other activities similar to the proposed project activity:

Wind farms constitute a small share of the installed generation capacity. The generation mix of the grid is dominated by fossil fuel fired power plants and this share is expected to grow.

The total installed capacity of wind farms in Turkey is relatively small compared to the total installed capacity The current wind power projects in Turkey add up to 146.25 MW, where the total where the total installed capacity equals 40,564.8 MW.

Table 9. Most recent wind farms installed in Turkey[24]

Location	Company	Installed Capacity (MW)	Developed as	Year
İzmir – Çeşme	Alize A.Ş.	1.5	BOT	1998
İzmir – Çeşme	Güçbirliği A.Ş.	7.2	BOT	1998
Çanakkale – Bozcaada	Bores A.Ş.	10.2	BOT	2000
Istanbul – Hadımkoy	Sunjüt A.Ş.	1.2	BOT	2003
Balıkesir – Bandırma	Bares A.Ş.	30	VER	2006
Istanbul – Silivri	Ertürk A.Ş.	0.85	BO	2006
İzmir – Çeşme	Mare A.Ş.	39.2	BO-VER	2007
Manisa – Akhisar	Deniz A.Ş.	10.8	BO-VER	2007
Çanekkale – Intepe	Anemon A.Ş.	30.4	BO-VER	2007
Çanakkale – Gelibolu	Doğal A.Ş.	14.9	BO-VER	2007
TOTAL		**146.25**		

Note: BOT = Build Operate Transfer; BO = Build Operate, VER = developed with income from the sale of carbon credits. All older wind farms have been developed as BOT project.

Sub-step 4b. Discuss any similar options that are occurring:

The most recent wind farms of comparable size to the project activity, based on installed capacity, were developed as VER project.

The additionality analysis shows that the project activity faces barriers that prevent the implementation of the project without VER revenues. Therefore the project activity can be considered as 'additional'.

B.5.1 Prior Consideration

Prior consideration is not required. B.5.2 Ongoing Financial Need

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	According to the Annex 5 of EB 62 "Guidelines on the assessment of Investment analysis" version 5, only variables including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation. In accordance with the guidelines, important parameters for the feasibility of the proposed project activity are defined as investment cost, production expenses and revenues. The mentioned parameters have been tested with a range of ±10% for the sensitivity analysis.
Describe how the proposed project meets the criteria for deemed additionality.	The Internal Rate of Return (IRR) is below the financial benchmark when the PDD has prepared, thus project activity cannot be considered to be a financially attractive alternative.

Below you can find the electricity sales income, operational costs, carbon sales income and carbon certification expenses. They are all normalized to the net income (divided by net income).

For Crediting Period (10/07/2009-09/07/2016)	% to Net Income
Income	114.95
Costs	14.95
Net Income	100
Carbon Income	0.62
Carbon Costs	0.64
Net Carbon Income	-0.02

Income occurring from electricity sales (sole income except carbon revenues) is 1.14 times the net income and overall expenses (including depreciation costs) make up to 14.95 times the net income. Revenues from carbon credit sales make only 0.62 percent of net income. Carbon certification costs amount to 0.64 percent of the net income and net carbon sales income amount -0.02 percent of net electric sales income.

The project is not financially attractive. It can be seen that IRR is still 7.30% in the IRR excel file.Therefore, carbon revenues are crucial for the project. The income of the GS VER is very important for the financial performance of the project and GSVERs price will be increase in near future. So, the results of the financial analysis still same for the project, with the decision to go ahead was made 7 years ago, both with and without VER financing. This therefore indicates that in comparison to alternative investments, the Project was still financially unattractive in the absence of VER financing.

The project has not continued the verification process because of the economic situation of cost and carbon credit's price.

B.6. Sustainable Development Goals (SDG) outcomes

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

Relevant Target/Indicator for each of the three SDGs

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact Indicator (Proposed or SDG Indicator)
13 Climate Action (mandatory)	T:13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	I:13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions

7 Affordable and Clean Energy	T:7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	I: 7.2.1 "Renewable energy share in the total final energy consumption
8 Decent Work and Economic Growth	T: 8.5 By 2030 achieve full and productive employment and decent work for all women and men	I: 8.5.2 Unemployment rate, by sex, age and persons with disabilities

SDG 7: Affordable and Clean Energy

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 71,366.095 MWh[15] of clean energy per annum.Net generation will be as below.

Net Generation (MWh) = Electricity Supplied to the Grid (MWh)– Electricity Consumption from the Grid (MWh)

The net generation and internal consumption identified and approved by authorized EPIAS.

The project contributes to the following indicators 7.2.1 "Renewable energy share in the total final energy consumption" and following target: 7.2 ''By 2030, increase substantially the share of renewable energy in the global energy mix."

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project provides employment to 7 people during the operation phase.

The project contributes to the following indicators 8.5.2 "Unemployment rate, by sex, age and persons with disabilities" and following target: "8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value"

The target will be monitored by the number of full-time employees with the SGK records during the verification process. Because of the social conditions of the project area, employment of woman and persons with disabilities is not possible.

The project contributes to the following indicators 8.5.2 "Unemployment rate, by sex, age and persons with disabilities" and following target: "8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value"

[15] Keltepe MW Wind Farm Project's average annual production value of 13 operation years

The target will be monitored by the number of full-time employees with the SGK records during the verification process. Because of the social conditions of the project area, employment of woman and persons with disabilities is not possible.

SDG13: Climate Action:

The project leads to mitigation of 46,302 tCO_2 per annum.

The project contributes to the following indicators 13.3.2 "Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" and following target 13.3 "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning"

The project's contribution is done through training and awareness raising of local people and setting good example by investing to the climate friendly technology.

As developing the baseline and calculation of the emission reductions for the proposed project activity are calculated according to "Tool to calculate the emission factor of an electricity system" version 07.0.
Emission Reductions
The emission reductions are calculated based on the below formula:

$ER_y=BE_y-PE_y- LE_y$

Where:

ER_y = Emission reductions in year y (tCO2e/yr)
BE_y = Baseline emissions in year y (tCO2/yr)
PE_y= Project emissions in year y (tCO2e/yr)
LE_y = Leakage emissions in year y (t CO2/y)

Project Emissions
As the proposed project activity is a new grid-connected wind power plant. For this reason, PE_y is considered as "0" in line with ACM0002 Version 20.0

$PE_y=0$

Leakage
Leakage emission (LE_y) is considered as "0" as suggested in ACM0002 Version 20.0

$LE_y=0$

Baseline Emissions
The baseline emissions are calculated as follows:

$BE_y = EG_y * EF_{CO2,i,y}$

Where:

BE_y = Baseline emissions in year y (tCO_2/yr)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{CO2,i,y}$ = CO2 emission factor of fuel type i in year y (t CO2/MWh)

According the "Tool to Calculate the Emission Factor for an Electricity System v07.0.0". Option 1 has been selected.

Option 1

A delineation of the project electricity system and connected electricity systems published by the DNA or the group of the DNAs of the host country(ies), In case a delineation is provided by a group of DNAs, the same delineation should be used by all the project participants applying the tool in these countries.

Operating, Build and Combined Margin Emission Factors have been published by the Ministry of Energy and Natural resources. The Ministry has calculated the factors as using the "Tool to calculate the emission factor for an electricity system". Since it's the latest available data, published by the ministry, these factors have been considered.

Calculation of the Operating Margin Emission Factor

It's been published as 0.7424 tCO2/MWh by the Ministry of Energy and Natural Resources.[16]

Calculation of the Build Margin Emission Factor

It's been published as 0.3680 tCO2/MWh by the Ministry of Energy and Natural Resources.[17]

Calculating of the Combined Margin Emission Factor

It's been published as 0,6488 tCO2/MWh by the Ministry of Energy and Natural Resources. The combined margin is calculated ex-post and has been fixed for the crediting period. And this calculated CM= 0.75xOM+0.25xBM. This national EF published by Turkish Republic Ministry of energy.[18]

[16] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf
[17] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf
[18]

T.C. ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞI	TÜRKİYE ULUSAL ELEKTRİK ŞEBEKESİ EMİSYON FAKTÖRÜ BİLGİ FORMU	Doküman No	ETKB-EVÇED-FRM-039 Rev.02
		Revizyon / Yayın Tarihi	02.09.2022

Faaliyet temelli marj ve gelişim temelli marj emisyon faktörü rakamları birleşik marj emisyon faktörünün hesaplanmasında kullanılmaktadır.

Hesaplanan faaliyet temelli marj ve gelişim temelli marj kullanılarak **güneş ve rüzgâr kaynaklı elektrik üretim santralleri ve diğer yenilenebilir enerji santralleri için iki farklı birleşik marj emisyon faktörü** hesaplanmıştır.

Faktör Türü	Yılı	Değeri (tCO_2/MWh)
Birleşik marj emisyon faktörü (güneş ve rüzgâr)	**2020**	**0,6488**
Birleşik marj emisyon faktörü (diğer yenilenebilir)	**2020**	**0,5552**

Yenilenebilir enerji kaynaklı elektrik üretimi ile sağlanacak sera gazı salım **(SGS) azaltım hesaplamalarında** kaynak türüne göre hesaplanan **birleşik marj emisyon faktörleri** kullanılabilecektir.

B.6.2 Data and parameters fixed ex ante

I: 7.2.1 "Renewable energy share in the total final energy consumption"

Data/parameter	$EF_{CO2,grid,y}$
Unit	tCO_2/MWh
Description	Combined margin CO2 emission factor for the project electricity system in year y
Source of data	Republic of Turkey Ministry of Energy in Emission Factor 2020[19]
Value(s) applied	0.6488
Choice of data or Measurement methods and procedures	Calculate baseline emission
Purpose of data	Calculation of baseline emissions - to demonstrate contribution to SDG7- 7.2.1 Renewable energy share in the total final energy consumption

B.6.3 Ex ante estimation of SDG Impact

SDG 7: Affordable and Clean Energy

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 71,366.095 MWh of clean energy per annum. Net generation will be as below.

Net Generation (MWh) = Electricity Supplied to the Grid (MWh)– Electricity Consumption from the Grid (MWh)

SDG 8: Decent Work and Economic Growth

[19] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project provides employment to 7 people during the operation phase.

SDG13: Climate Action:

The project contributes to the following indicators 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" following target 13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
The project leads to mitigation of 46,302 tCO_2 per annum.

Baseline emissions

As per ACM0002, the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor for the project grid. Baseline emissions calculated as explained in section B.6.1 above are summarized as below.
$BE_y = EG_{m,y} * EF_{CO2,i,y}$

Where,
BE_y = Baseline emissions in year y (tCO2/yr)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{CO2,i,y}$ = CO2 emission factor of fuel type i in year y (t CO2/MWh)
Hence,

BE_y = 71,366.095 MWh/yr * 0.6488 tCO_2/MWh

BE_y = 46,302tCO_2e

Project emissions

The proposed project activity involves the generation of electricity by development of a large-scale wind power project. The generation of electricity does not result in greenhouse gas emissions and therefore:
PEy = 0 tCO_2/year

Leakage

The energy generating equipment is not transferred from or to another activity. Therefore, leakage does not have to be taken into account, and:

LEy = 0 tCO_2/year

Emission reductions

ERy = BEy – PEy- LEy

ERy = BEy

ERy = 46,302tCO_2

B.6.4 Summary of ex ante estimates of each SDG Impact

SDG 7: Affordable and Clean Energy

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum.

Year	Baseline estimate	Project estimate	Net benefit (MWh)
10/07/2016-31/12/2016	0	34,216.621	34,216.621
2017	0	71,366.095	71,366.095
2018	0	71,366.095	71,366.095
2019	0	71,366.095	71,366.095
2020	0	71,366.095	71,366.095
2021	0	71,366.095	71,366.095
2022	0	71,366.095	71,366.095
01/01/2023-09/07/2023	0	37,149.474	37,149.474
Total	**0**	**499,562.665**	**499,562.665**
Total number of crediting years	**7**		
Annual average over the crediting period	**0**	**71,366.095**	**71,366.095**

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project has been provided employment 7 people.

This helps to achieve SDG 8 with indicators 8.5.2 "Unemployment rate, by sex, age and persons with disabilities" and following target: 8.5 "By 2030, achieve full and productive

employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value".

SDG 13 Climate Action

The project contributes to the following indicators 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" and following target 13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Year	Baseline estimate	Project estimate	Net benefit (tCO2)
10/07/2016-31/12/2016	22,199	0	22,199
2017	46,302	0	46,302
2018	46,302	0	46,302
2019	46,302	0	46,302
2020	46,302	0	46,302
2021	46,302	0	46,302
2022	46,302	0	46,302
01/01/2023-09/07/2023	24,102	0	24,102
Total	**324,113**	**0**	**324,113**
Total number of crediting years	**7**		
Annual average over the crediting period	**46,302**	**0**	**46,302**

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

Relevant SDG Indicator/Safeguarding Principle	Safeguarding Principle 4.3.4: Release of pollutants
Data / Parameter	Water Quality and Quantity (Disposal of the waste water)
Unit	N/A
Description	During the construction and operation phases, domestic wastewater produced by workers collected in impermeable septic tanks. This wastewater are collected by vacuum trucks of the Municipality of Balikesir and disposed according to Regulation on Waste Water Control.

Source of data	Records of transfer of waste water from power plant by vacuum truck
Value(s) applied	N/A
Measurement methods and procedures	N/A
Monitoring frequency	Once for each monitoring period
QA/QC procedures	N/A
Purpose of data	To monitor compliance to Safeguarding Principle 4.3.4 (Release of pollutants)
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Principle 9.11 Endangered Species - Biodiversity
Data / Parameter	Birds observation
Unit	N/A
Description	Ensuring that the project creates no disturbance to the regional habitat
Source of data	Regular site vetting for bird/bat nests and carcasses and recording on logbook by appointed personnel
Value(s) applied	N/A
Measurement methods and procedures	Observations around the project area will be done for monitoring birds and carcass
Monitoring frequency	Once for each monitoring period
QA/QC procedures	Records of regular observations will be kept
Purpose of data	To monitor compliance to Safeguarding Principle 9.11
Additional comment	-

SDG 7: Affordable and Clean Energy

7.2.1 Renewable energy share in the total final energy consumption

Data / Parameter	$EG_{PJ,grid,y}$
Unit	MWh
Description	Quantity of electricity generated and supplied by the project power plant to the grid in year y
Source of data	Monthly electricity meter readings
Value(s) applied	71,366.095
Measurement methods and procedures	The net electricity generation supplied to the grid will be measured continuously by TEAIS meters (both main and spare) and recorded monthly.

Monitoring frequency

Continuous measurement and at least monthly recording. (Automatic meter reading system-OSOS)

The accuracy of meters is given as 0.2s active and 0.5s reactive class

	Electricity Meter(Primary)	Electricity Meter (Secondary)
Manufacturer	LANDIS	ITRON
Model	ZMD402CT44	SL7000
Serial number	51255646	65007629
Date of installation	28/12/2015	09/12/2013
Date of initial calibration	10/08/2015	12/09/2013
The accuracy of meters	0.2s active 0.5 re-active	0.2s active 0.5 re-active

Calibration frequency: According to the Article 9 of the relevant regulation[20] , periodical inspections of "gauges for electric, water, coal gas, natural gas and, current and voltage measuring transformers will be made once in 10 years". This is in line with the monitoring plan and national requirements. UEDAS is deciding when to carry out the next calibration. The Project owner has no control over or access to the measurement devices and is not entitled to perform any type of maintenance or calibration.

Date of initial calibration: The calibration of the monitoring equipment was carried out according to the information provided in the PDD. The PDD mainly includes the following obligation for the calibration of the appropriate meters:
"UEDAS is responsible for calibration and maintenance of the devices. If any difference occurs between primary and secondary device UEDAS performs necessary calibration"

QA/QC procedures

- Measurements are undertaken using energy meters.
- Concerning metering system accuracy, project participant has to comply with relevant national legislation. The project must ensure that the metering devices are in line with the technical requirements which are set out by the Communiqué for Metering Devices to be used in the Electricity Market, which describes the minimum accuracy requirement the metering devices have to fulfil, which are categorized according to the installed capacity.
- Maintenance and calibration of UEDAS meters will be carried out according to the System Usage Agreement. Since UEDAS meters are sealed by UEDAS the project proponent cannot intervene with the devices[21].

[20] "Measurement and Measuring Tools Inspection Regulation", Date: 24/07/1994, Official Gazette Number: 22000 https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

[21] http://www.mevzuat.gov.tr/MevzuatMetin/1.5.3516.doc

	• The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. Data measured by meters will be crosschecked with the EPIAS records. Also, SCADA can use for checking this kind of data's if VVB wants to check them.
Purpose of data	Baseline/emission reductions calculations
Additional comment	-

SDG 8: Decent Work and Economic Growth

8.5.2. Unemployment rate, by sex, age and persons with disabilities

Data / Parameter	Number of employment generation
Unit	Number
Description	Number of people employed directly due to the project activity
Source of data	SGK Records
Value(s) applied	The project provides 7 employments
Measurement methods and procedures	The total number of persons working in the plant would be calculated based on the SGK Records
Monitoring frequency	Once for each monitoring period
QA/QC procedures	Social insurance registries of employees will be provided annually.
Purpose of data	-
Additional comment	-

Relevant SDG Indicator	8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status.
Data / Parameter	Health and Safety Training Records
Unit	Number of people per monitoring period
Description	Number of people trained on health and safety issues during per monitoring period
Source of data	Training Records or Certificates
Value(s) applied	The project will provide health and safety training to employees at each monitoring period
Measurement methods and procedures	The total number of Health and Safety training based on Training Records or Certificates
Monitoring frequency	Once for period each monitoring

QA/QC procedures	Training records or certificates will be provided
Purpose of data	Monitoring the health and safety trainings of employees to demonstrate contribution to SDG8-8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
Additional comment	n.a

SDG 13 Climate Action

13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions" and following

Data / Parameter	ER_y
Unit	tCO2/y
Description	Emission Reductions in year y (t CO2/yr) As per ACM0002 V 20.0, the baseline emissions (emission reductions) are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor for the project grid.
Source of data	Measured and calculated. (The emission reduction value the emission factor of the grid to which the project exports electricity (0.6488 tCO_2/MWh) and net electricity generated)
Value(s) applied	46,302 tCO_2
Measurement methods and procedures	Please see B.6.2 for more detailed description of the monitoring plan.
Monitoring frequency	Once for each monitoring period
QA/QC procedures	Republic of Turkey Ministry of Energy in Emission Factor 2020[22]
Purpose of data	-
Additional comment	-

B.7.3 Other elements of monitoring plan

According to the Turkish Law and Regulations, the methods of monitoring the net electricity fed to the grid and quality control and assures are explained below:

Data processing and archiving: Monitoring data is collected in accordance with the agreement done between the project owner and UEDAS Electricity Distribution Company (UEDAS) which provides the infrastructure for the connection to the national

[22] https://enerji.gov.tr//Media/Dizin/EVCED/tr/ÇevreVeİklim/İklimDeğişikliği/TUESEmisyonFktr/Belgeler/Bform2020.pdf

grid. The metering system is defined in the agreement as two groups: main meter and secondary meter. The design of the metering system is checked and approved by UEDAS before commissioning of the plant. The technical specifications of the power meters should be in line with Measure and Metering Devices Regulation by Ministry of Industry and Trade[23]. In addition, the Communique for Power Meters announced by Energy Market Regulations Authority (EMRA) requires all meters to be in line with either Turkish Standards Institution or International Electro Technical Commissions Standards. The meters are placed at the point the electricity is fed to the grid and sealed on behalf of both parties. This prevents any intervention and assures the accuracy and quality of the measurements. All requirements and specifications of the meters will be done according to Communique on the counter to be used in the Electricity Market by Energy Market Regulatory Authority on 22/04/2011. The Enercon SCADA system also stores various data (e.g. electricity generated by each turbine, energy supplied etc.) electronically.

Data has been stored electronically, during the crediting period and at least two years after the last issuance of credits for the wind farm project activity in the concerning crediting period. The project participants also archived a hardcopy of meter reading protocols, scanned them, and stored them. The invoices are kept by the Project owner as hardcopies. Furthermore, the EPIAS system stores the reports electronically, which is accessible to the Project owner whenever necessary.

The project's capacity was increased to 29.2 MW in 2017. But PP can use only 20.7 MW capacity's electricity generation. And the PP can use the ratio for metering. Ratio between the electricity generation of the existing addition and the added capacity: Electricity generation of each turbine under Keltepe Wind Farm Project (the existing capacity and added capacity) has been measured continuously with a SCADA system. The total amount of electricity generated from the existing capacity and the added capacity under the proposed project activity has been measured on monthly bases and has been used to calculate the ratio of electricity generation. This ratio has been used to calculate the quantity of net electricity generation supplied to the grid by the project plant that has been added under the project activity.

Formulation: The following equation will be used to calculate the the quantity of net electricity generation supplied to the grid by the project plant that has been added under the project activity:

$EG_{PJ-ADD,y} = EG_{facility,y} * EG_{RATIO,y}$

Where:

$EG_{PJ-ADD,y}$=Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/yr)

$EG_{facility,y}$ =Quantity of total net electricity generation supplied to the grid in year y by

[23] https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=6381&MevzuatTertip=5

the facility (capacity addition and the existing capacity) and measured by the TEİAŞ meters (MWh/yr)

$EG_{RATIO,y}$=Ratio between electricity generation of the capacity addition and the gross generation of both projects in year y (%)

QA/QC procedures: The main and secondary meter readings are recorded monthly and cross-checked whether calibration is required. The capacity of the transmission line connected is to 154 kV, the accuracy class for power meters have been defined in the Communiqué for Power Meters. The calibration frequency of the meters is 10 years. It is under the responsibility of UEDAS. Since UEDAS meters are sealed by UEDAS, the project proponent cannot intervene with the devices.[24] The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. Data measured by meters will be crosschecked with the EPIAS records.

Roles and responsibilities: The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project proponent. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment's for this project activity.

Plant engineer is responsible for the information flow and monitoring procedures in the name of the Project owner. These responsibilities include proper implementation of the monitoring plan, ensuring the information flow between the Project owner company and the VVB and management of the monitoring and verification procedures. The Electrical Engineer of Keltepe WPP, responsible for monitoring issues on site.

The internal control procedures maintain the reliability and accuracy in the data transfer and calculations. The plant personal records the data on regular basis from both meters and compares the values for consistency. The responsible engineer performs regular checks of this procedure each month and controls the monthly data of main and second meters. If any difference occurs between the two meters, UEDAS has to be informed for further actions. Reliability and accuracy of monthly values is reached by comparative readings both from the project participant and UEDAS, where high accuracy is guaranteed and needed by the requirements of billing purposes.

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https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5

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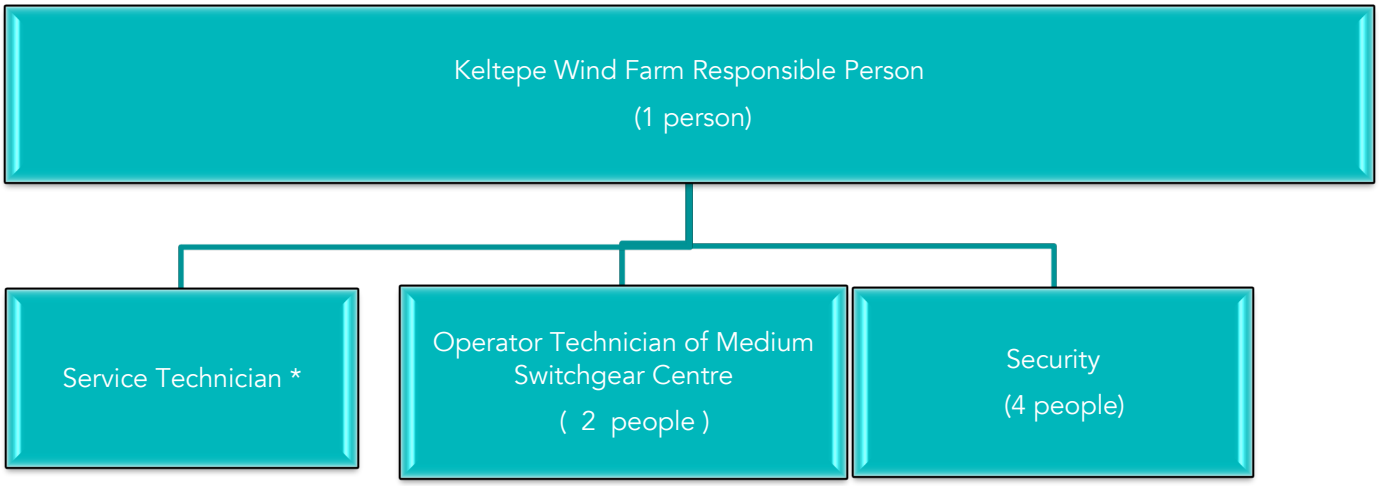

*The Service Technician can be changed according to their work schedule. And Alize Enerji Elektrik Üretim A.Ş. has only responsible of wind farm electrical engineer, HV Switchgear Operators, Security personals and forest officer. (7 people).

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

10/07/2009 Project activity started on 10/07/2009 as per the registered PDD for CP1

C.1.2 Expected operational lifetime of project

25 years and o months

C.2. Crediting period of project

Renewable crediting period is chosen for the Keltepe Wind Farm Project, Turkey

C.2.1 Start date of crediting period

Starting date of the first crediting period: 10/07/2009

Starting date of the second crediting period: 10/07/2016

C.2.2 Total length of crediting period

7 years and 0 months, which is planned to be renewed. (21 years) The crediting period is second crediting period.

Date of the second crediting period: 10/07/2016-09/07/2023

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in Appendix 1, ongoing monitoring is summarised below.

Principles	Mitigation Measures added to the Monitoring Plan
Principle 9.4 Release of pollutants	The all wastes are disposed of according to related regulations. The methods are categorized for all materials. The employees produce the insignificant amount of waste waters during the operation of the proposed project activity. This wastewater has been collected in an impermeable septic tank and collected via vacuum trucks by Balikesir municipality and disposed according to Regulation on Control of Water Contamination[25]. The details can be seen in section B.7.1
Principle 9.11 Endangered Species	The appointed personnel will conduct regular site vetting to observe nests and carcass on project area and record the same. The details can be seen in section B.7.1

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Does the project reflect the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy? Explain how.	As per Gold Standard Gender Policy (https://globalgoals.goldstandard.org/101-1-g-gold-standard-gender-policy/), p. 10 "Foundational gender-sensitive requirement - This strengthens Gold Standard's 'do no harm' approach and addresses safeguards to prevent or mitigate adverse impacts on women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standard certification and includes compliance with the gender 'do no harm' safeguards, gender gap analysis and gender sensitive stakeholder consultations."

[25] Official record document or invoice will be provided to the VVB during each monitoring period. http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.7221&MevzuatIliski=0&sourceXmlSearch=Su%20Kirlilii%C4%9Fi%20Kontrol%C3%BC%20Y%C3%B6netmeli%C4%9Fi

	The project being a wind power project is not gender sensitive project. The project does not adversely impact women or men.
Question 2 - Does the project align with existing country policies, strategies and best practices? Explain how.	The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. Turkey is party to Convention on Discrimination since 1972 to prevent any form of discrimination. (https://www.mfa.gov.tr/convention-on-the-elimination-of-all-forms-of-discrimination-against-women.en.mfa)
Question 3 - Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.	The Project shall complete the following gender assessment questions (https://globalgoals.goldstandard.org/101-4-gold-standard-for-the-global-goals-safeguarding-principles-requirements/) below: 1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? No, the Project is wind power project does not reduce access to or control of resources for women. 2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)? No, the Project beneficiaries in terms of employment and social upliftment of the area are common for both the gender. The project does not involve in any form discrimination in any kind of form. 3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, childcare duties, low literacy or educational levels, or societal discrimination)? No, this project does not involve in any form discrimination in any kind of form. 4. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that

	it includes minority groups or landless peoples)? Yes the project takes into account gender roles and abilities of women/men. Job profile is allocated based on the type of work to be carried out. 5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities? No, on the contrary the project leads to increased availability of electricity in the regional grid thereby uplifting the living standards. 6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits? No, since the project is a renewable electricity generation project, thus it will not have discriminated against women. 7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services? No, in fact, the project leads to improved electricity in the regional grid.
Question 4 - Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure Requirements? Explain how.	The project is applying for regular GS registration and the Stakeholder Consultation & Engagement Procedure Requirements has been done as explained below. The project owner has organized the complimentary stakeholder consultation meeting according to related requirements of GS4GG for Keltepe Wind Farm Project, Turkey. In developing a Project, "taking gender issues into account would require that local stakeholder consultation processes reach a wide range of community representatives in ways that ensure equal and effective participation of women and men in consultation, and that gender issues are fully factored into comprehensive social and environmental impact assessments."

	The general outcome of the stakeholder consultation interview was positive verbally and mukhtar of the Kiraz village has given their comment with a letter. (This letter has been provided to the DOE for renewal crediting (re-validation) process.) That's why there is no need to make physical local stakeholder consultation meeting for renewal crediting period. The stakeholders stated that they are in favour of the project and underlined the significant contribution of the project to regions sustainable image and stressed the importance of renewable and clean energy every time.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

E.1 Summary of stakeholder mitigation measures

The stakeholders to the project activity was defined jointly by the project owner and Rüzgar Danışmanlık (Cagla Balci Eris) , who is the consultant to the GS project cycle, taking into account the characteristics and possible impacts of the project activity.

Complementary Stakeholder Consultation

The documents including the non-technical project summary for renewal crediting period and the Environmental and Social Impact questionnaire related with the Sustainable Development Indicators (SD Assessment) (according to GS4GG requirements) have been delivered to the stakeholders who have been selected as stakeholders to the project activity. The main communication method has been through e-mails and delivery of hard copies of the mentioned documents for those who don't have an email address (specifically the locals) to the mukhtar of Kiraz village.

The feedback request for renewal crediting period has started on 08/04/2022 with sending out the documents to the stakeholders officially, and verbally on the same day the mukhtar of Kiraz village and no feedback has been received 08/05/2022. The beginning of Complemantary Stakeholder Feedback Round has been announced from the muckhtar's offices, mosques and coffe houses of the Kiraz village. This public leaflet announcement, emails and documents contain information such as location of available these documents, the procedure to commit comments, timing and the contact's details.

The stakeholders stated that they are in favour of the project and underlined the significant contribution of the project to regions sustainable image and stressed the importance of renewable and clean energy.

List of stakeholders invited to the Complementary stakeholder consultation for the renewal of crediting period:

Category code	Organisation (if relevant)	Name of invitee	Way of invitation	Date of invitation	Confirmation received? Y/N
C	Ministry of Environment and Urbanization	Mehrali Ecer	Via E-mail and phone mecer@cob.gov.tr 0 312 5863052	08/04/2022	Y
C	Ministry of Environment and Urbanization	General	Via E-mail and phone iklim@csb.gov.tr 0 312 5863167	08/04/2022	Y
B	Balıkesir Provincial Directorate of Environment and Urban Planning	General	Via E-mail and phone Balıkesir@csb.gov.tr 0266 224 47 15	08/04/2022	Y
B	Balıkesir Forest Regional Directorate	General	Via E-mail and phone Balıkesirobm@ogm.gov.tr 0266 243 66 92	08/04/2022	Y
B	Balıkesir Provincial Directorate of Food, Agriculture and Livestock	General	Via E-mail and phone Balıkesir@tarimorman.gov.tr 0266 246 26 70	08/04/2022	Y
B	Mayor of Balıkesir	Ülgür Gökhan	Via E-mail and phone Balıkesiribb@hs01.kep.tr 0266 239 15 19	08/04/2022	Y
D	Balıkesir Chamber of Commerce and Endustry	General	Via E-mail and phone bso@bso.org.tr 0 266 281 11 80	08/04/2022	Y
D	REC Regional Environmental Centre	Rıfat Unal Sayman	Via E-mail info@rec.org.tr/ unal.sayman@rec.org.tr	08/04/2022	Y
A	Headman of Kiraz Village		Via face to face	08/04/2022	Y
F	Greenpeace	Genel	Via E-mail and phone bilgi.tr@greenpeace.org 0 212 292 76 19	08/04/2022	Y
F	WWF	Asli Pasinli	Via E-mail apasinli@wwf.org.tr/ info@wwf.org.tr 0212 528 20 30	08/04/2022	Y
E	Gold Standard Foundation	Neha Rao	Via E-mail neha.rao@sustain-cert.com	08/04/2022	Y
F	REEP	Info	Via E-mail info@reeep.org	08/04/2022	Y

F	MERCY CORPS	Dorothy Mcintosh	Via E-Mail dmcintosh@uk.mercycrops.org	08/04/2022	Y

E.2 Final continuous input / grievance mechanism

Comments apart from the meetings

Until the GS registration of the project activity in 2009 and 2022 complimentary local stakeholder process for second crediting period no comments from the invited stakeholders apart from the meetings have been received, neither by phone calls, by e-mail, by post nor by fax during these seven operational years until 8st of May 2022.

The continuous input/grievance mechanism expression method and discussed with the locals which place is convenient for the grievance book (logbook) during the LSC meeting. As a result of discussion, the grievance book was given to the Headman of Kiraz village. At the same time, the contact details of the project owner, consultant and the GS Manager's were shared with the stakeholders. All of these details have been given in the log book for stakeholders to make any comments they want to write. The PP has checked the comments in the book on a regular basis, and record responses. The grievance (log book) book was checked and no complaints about the project until now. The PP are in a good relationship with the local stakeholders.

In addition, all these documents has been made available under the GS registry webpage as required by GS4GG.

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into SECTION D above. Please refer to the instructions in the Guide to Completing this Form.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion	No	The Project is not in conflict with the economic livelihood or other issue of the local community. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. 2.Project activities are not expected to cause any human rights abuse. As a member of United Nations and part of UN Agreement on Human Rights, it is ensured by law in Turkey that no action can be taken against	N/A

		human rights.[26]	
Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women 2. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	No	1.The project does not adversely affect men and women in marginalized or vulnerable communities because it creates stable jobs and incomes for local men and women. The project does not reduce or put at risk women's access to or control of resources, entitlements. 2.Keltepe Wind Farm Project Wind Farm, Turkey project does not involve in any form discrimination in any kind of form. Turkey ratified ILO 100 Equal Remuneration Convention	N/A

[26] https://www.resmigazete.gov.tr/arsiv/7217.pdf

		and 111 Discrimination (Employment and Occupation) Convention[27] Therefore, the safeguarding principle related to Gender Equality and Women's Rights is not triggered during the project design and implementation 3.The project does not have any scope to apply gender strategy. 4. N/A	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	Yes	The project owner is committed to the safe and healthy working conditions during all phases of the project. All employees will attend trainings health & safety. This issue is protected by Labor Law and	All the employees are trained about health and safety issues during operation phase of the project.

[27] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO::P11200_COUNTRY_ID:102893

		regulations[28] and UN Agreement on Human Rights.[29]	
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	During the operation of the Keltepe Wind Farm Project does not do any damage, alteration or removal to the critical cultural heritage.[30] Cultural and environmental heritage is protected against alteration, damage or removal by the law.[31]	N/A
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project does not involve any settlement areas. Thus, this project does not cause the physical or economic relocation of peoples. The	N/A

[28] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf

[29] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6701.pdf

[30] Project Introductory Document (PID) page 33

[31] https://kvmgm.ktb.gov.tr/TR-43249/law-on-the-conservation-of-cultural-and-natural-propert-.html

		wind farm area is Forestry area[32]	
Principle 4.3 Land Tenure and Other Rights			
a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?	No	The project does not require any changes to land tenure arrangements or other rights. And this Keltepe Wind Farm Project Wind Farm, Turkey is not involving land-use tenure. Furthermore, there is not any uncertainties with regards land tenure, access rights, usage rights or land ownership. The land of the project had approved by the several local Authorities.	N/A
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	No cultural heritage/ indigenous people are displaced due to the project.	N/A

[32] Project Introductory Document (PID) pages 13, 29 and 39

Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	Keltepe Wind Farm Project does not involve and is not complicit in any kind of corruption Turkey has ratified UN Convention against Corruption and the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions.[33]	N/A
Principle 6.1 Labour Rights			
1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organisations 3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND	Yes	1.The project owner and their subcontractors complying with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental. 2. Workers have the right	All the employees are trained about health and safety issues during operation phase of the project.

[33] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.3628.pdf

b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures		to establish and join the organization if they want it. 3. The project owner follows regulations of Labour Law of Turkey."Working hours" and "occupational injuries" are already protected and monitored with related regulations and law; checked by Ministry of Labor and Social Security in Turkey. "Fair wage" cannot monitor because of "Law on the protection of personnel data" in Turkey.[34] Furthermore, PP always ensure the participation of women and men in project activities and benefits. Alize Enerji Elektrik Üretim A.Ş. and appointed subcontractors do not involve	

[34] https://www.kvkk.gov.tr/SharedFolderServer/CMSFiles/aea97a33-089b-4e7d-85cb-694adb57bed3.pdf

		in any form forced or compulsory labour Turkey has ratified ILO 29 Forced Labour Convention[35] 4. Alize Enerji Elektrik Üretim A.Ş. does not employ children in any shape or form for their works. Turkey has ratified ILO 138 Minumum Age Conventions and 182 Worst Forms of Child Labour Convention[36] 5. The project owner is committed to the safe and healthy working conditions all phases of the project. All employees have been attending trainings health & safety. This issue is protected by Labor Law and	

[35] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO::P11200_COUNTRY_ID:102893

[36] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO::P11200_COUNTRY_ID:102893

		regulations[37] and UN Agreement on Human Rights[38]	
Principle 6.2 Negative Economic Consequences			
1. Does the project cause negative economic consequences during and after project implementation?	No	The project has only one activity and it is producing electricity using wind energy. It provides the produced energy to the national grid. Other than providing clean energy to the nation, it has no negative impact on local economy during and after project implementation. Furthermore, it has positive impact by providing employment to local people.	N/A
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The Project will reduce the emission of 46,302 tCO_2e/year compared to	N/A

[37] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf

[38] https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6701.pdf

		the Baseline Scenario as it replaces electricity generated from fossil fuel fired power plants with zero emissions electricity from the wind power plant	
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The Project's purpose is to supply clean energy from the wind power plant to the national grid. It does not use energy from a local grid or power supply or fuel resource that provides for other local users.	N/A
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project is wind power project thus there is no impact of water resources, natural or pre-existing pattern of watercourses, groundwater and/or the watershed due to the project. Staffs produce the insignificant amount of waste waters, and this	N/A

		wastewater has been collected in an impermeable septic tank and collected via vacuum trucks by Balıkesir-municipality and disposed according to Regulation on Control of Water Contamination.	
Principle 8.2 Erosion and/or Water Body Instability			
a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The Project directly or indirectly does not cause additional erosion and/or water body instability or disrupt the natural pattern of erosion. The project is susceptible to decreased vulnerability to erosion, flooding, drought or water body instability.	N/A
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	This project activity is to generate electricity from wind. It does not involve the use of land and soil for production of crops or other products.	
Principle 9.2 Vulnerability to Natural Disaster			

Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project is not susceptible to decreased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme conditions.	N/A
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	Keltepe Wind Farm project does not affect the herbal life negatively. Furthermore, the fauna and flora inventories in the project area are prepared and as a result it was seen that here is no endangered flora or fauna in the region.[39]	N/A
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	Yes	All wastes are disposed of according to related regulations. The environment is also protected by several Laws and	The wastewater has been collected in an impermeable septic tank and collected via vacuum

[39] Project Introductory Document (PID) pages 34; Ornithological-Ecological Evaluation Report of Keltepe Wind Farm Project pages 18, 34 and 83

		Regulations in Turkey (Host Country). The purpose of the "Law on Environmental Protection" is to protect the environment with principles of sustainable development and environment.	trucks by Balıkesir municipality and disposed according to Regulation on Control of Water Contamination[40].
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The Project producing electricity from the wind power plant to the national grid. Therefore, this WPP does not produce any chemicals or hazardous waste (NOx, SOx, VOC, mercury) quantity and just waste oil has been collected by accredited abatement companies.	
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	No	The Project is generating electricity from the wind power plant to the national grid.	N/A

[40] Official record document or invoice will be provided to the VVB during each monitoring period. http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.7221&MevzuatIliski=0&sourceXmlSearch=Su%20Kirlili%C4%9Fi%20Kontrol%C3%BC%20Y%C3%B6netmeli%C4%9Fi

		Therefore, the Project does not involve the application of pesticides and/or fertilizers.	
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	The project area is forests formed by shrubs and shrubs belonging to the maquis formation and leafy tree species such as beech and oak.[41] Therefore, the project does not involve harvesting of forest.	
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The Project is generating electricity from the wind power plant to the national grid. Therefore, the Project does not modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives.	N/A
Principle 9.9 Animal husbandry			

[41] Ornithological-Ecological Evaluation Report of Keltepe Wind Farm Project, Turkey page 19

Will the Project involve animal husbandry?	No	The Project does not modify the involve animal husbandry.	N/A
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	Since the proposed project includes only 23 turbines, it is not expected to create significant impacts on the local biological resources and wildlife in the project site. The project area is not a protected area related with the biodiversity, there are no sensitive genes, species and/or habitats existing within the project projects impact boundaries.[42] No mass migration has been observed in the project site and its immediate surroundings. The point where gliding migrating species enter	

[42] Final Ornithology and Bat Report of Keltepe Wind Farm Project page between 60 and 70

		the thermal during migration was seen once outside the project area.[43] The project owner also follows necessary procedures for environmental safety at the project site at international standard (such as Bern Convention)	
Principle 9.11 Endangered Species			
a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? b.Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	a.The physical location of the project is described in above principle. There are no endangered species identified as potentially being present the project boundary.[44] b.The project activity is not expected either potentially impact other areas where endangered species may be present through transboundary affects	Appointed personnel will conduct regular site vetting to observe nests and carcass on project area and record the same.

[43] Final Ornithology and Bat Report of Keltepe Wind Farm Project page 15
[44] Final Ornithology and Bat Report of Keltepe Wind Farm Project pages 71 and 72

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

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Revision History

Version	Date	Remarks
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption