

Gold Standard for the Global Goals
Key Project Information & Project Design Document (PDD)



Version 1.1 – August 2017

KEY PROJECT INFORMATION

Title of Project:	Çanakkale WPP
Brief description of Project:	Çanakkale Wind Power Plant is located between Üvecik Village and Mahmudiye Town of Çanakkale Province in Western part of Turkey. The total installed capacity is 29.9 MW and electricity generation is estimated to be 91,570 MWh annually. The project consists of 13 Siemens SWT 101 wind turbines, each having a capacity of 2.3 MWs. The electricity will be transmitted to an existing substation at Çanakkale Natural Gas Fired Power Plant via an underground power line.
Expected Implementation Date:	11/02/2011 ¹
Expected duration of Project:	20 years
Project Developer:	Enerjisa Enerji Üretim A.Ş. Sekans Danışmanlık
Project Representative:	SILA DURAN
Project Participants and any communities involved:	Enerjisa Enerji Üretim A.Ş.
Version of PDD:	V9
Date of Version:	04/09/2012 For renewal crediting period: v32 – 1012/0651/2021
Host Country / Location:	Turkey/Çanakkale
Certification Pathway (Project Certification/Impact Statements & Products)	Impact Statements & Products Project Certification, Pathway 1 – Regular cycle, Renewable Energy – VER Certification
Activity Requirements applied: (mark GS4GG if none relevant)	GS4GG Renewable Energy Activities (in general – renewable energy projects connected to national or regional grids or industrial facilities)
Methodologies applied:	ACM0002, version 20.0
Product Requirements applied:	GHG Emissions Reduction & Sequestration (required to issue VERs/PERs and label CERs)† (Energy industries (renewable –/ non-renewable sources))
Regular/Retroactive:	regular
SDG Impacts:	1 – SDG 7 Affordable and Clean Energy 2 –SDG 8 Decent Work and Economic Growth 3 – SDG 13 Climate Action
Estimated amount of SDG Impact Certified	56,755 tCO ₂ e

¹ Acceptance Protocol by Ministry of Energy and Natural Resources (MENR)

SECTION A. Description of project

A.1. Purpose and general description of project

Enerjisa Enerji Üretim A.Ş. built the Canakkale Wind Power Plant (Canakkale WPP) with an installed capacity of 29.9 MW in the Western part of Turkey. By means of the project, 91,570 MWh of energy annually has been expected through 13 Siemens SWT 101 wind turbines, each having a capacity of 2.3 MWs. The electricity has been transmitted to an existing substation at Canakkale Natural Gas Fired Power Plant via an underground power line.

The Project Proponent has been granted a 49 year generation licence 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 is to produce renewable electricity using wind as the power source and to contribute to Turkey's growing electricity demand through a sustainable and low carbon technology. The project will displace the same amount of electricity generated by the grid dominated with fossil fired power plants. The annual emission reduction estimated by the project is 56,755 tonnes of CO₂eq.

The project will produce positive environmental and economic benefits through the following aspects:

- 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,
- Reducing the blackout because of low voltage by lowering required capacity of the transformer

The project was operational on 11/02/2011 and registered on 03/08/2012 under the Gold Standard Registry with the registration number GS906.

A.2. Eligibility of the project under Gold Standard

The project activity meets the eligibility criteria according to section 3.1.1 of GS4GG Principles & Requirements document as below.

- The project applies methodology ACM0002 Version 20.0, which is an approved methodology under Gold Standard.
- The project type is wind and an eligible project type as per the 1.1. Eligible Project Types & Scope under Renewable Energy Activity Requirements.
 - (a) Project shall generate and deliver energy services (e.g. mechanical work/electricity/heat) from non-fossil and renewable energy sources
 - (b) Project shall comprise of renewable energy generation units, such as photovoltaic, tidal/wave, wind, hydro, geothermal, waste to energy and renewable biomass.
- 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.

- The Project is not included in any other voluntary or compliance standards programme.

General Eligibility Criteria

- Type of project: Wind
- Location of project: The project is located in Çanakkale province, Turkey. Therefore, the project is eligible.
- Project Area, Boundary and Scale: The registered project activity is 29.9 MW as large scale.

A.3. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

Enerjisa Enerji Üretim A.Ş

A.4. Location of project

A.4.1. Host Country

Turkey

A.4.2. Region/State/Province etc.

Aegean Region, Çanakkale Province

A.4.3. City/Town/Community etc.

Mahmudiye Town and Üvecik Village, Çanakkale Province, Turkey

A.4.4. Physical/Geographical location

Please see below the coordinates of the turbines as per the current generation license:

Table 1- Turbine Coordinates²

Turbine #	E	N
1	433141	4414154
2	433435	4414261
3	433739	4414308
4	434019	4414624
5	432220	4413490
6	432626	4413451
7	432986	4413460
8	433289	4413317

² The generation License

9	433558	4413026
10	433854	4413211
11	434154	4413253
12	434422	4412897
13	434727	4413532



Figure 1. The locations of the turbines in the project area

A.5. Technologies and/or measures

The Project Scenario entails the installation of thirteen Siemens SWT 101 wind turbines, each having a capacity of 2.3 MW. The turbines are 3 bladed with a horizontal axis. The turbine blades have the ability to change angles according to wind direction. The towers will have a hub height of 80 m. The diameter of the blades is 101m. The turbines are connected to the substation at the natural gas fired power plant operated by the project owner, then to the grid via 154kV Çan electricity transmission line. The metering has been done at substation before electricity is fed into the grid.

The turbines have a predicted life of 20 years from the manufacturer. The wind speeds in the area and predicted capacity factors are within the manufacturer's specifications for this predicted life. The Load Factor was derived from research done by Natural Power and is taken as 35%.

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. With regard to the actual operation of the project activity, the first temporary acceptance protocol signed by the Ministry of Energy and Natural Resources is dated 11/02/2011 for the commissioning of the 11 turbines. The second temporary acceptance protocol with the Ministry was signed on 06/05/2011 for the remaining two turbines. Please see below the technical specifications of the installed turbines.

Table 2- Technical specifications of the installed turbines

Model of Turbine	Parameter	Unit	Value
Siemens SWT 101	Rotor Diameter	m	101
	Rated Power	kW	2,300
	Rated Wind Speed	m/s	12
	Hub Height	m	80
	Operating wind	m/s	3-25
	Design life	y	20

The baseline scenario is 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. The Baseline Scenario is detailed in section B.4. In the project scenario, the project generates electricity from wind power and result in emission reductions in parallel with its electricity generation values. Since Turkey's grid mainly consists of thermal power plants, this would have resulted in GHG emissions. Briefly, 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, as described in more detail in section B.4.

In addition to displacing the electricity generated by fossil fuel fired power plants by utilising the renewable resources so as to avoid environmental pollution and GHG emissions, the project activity has increased the income and local standard of living by providing job opportunities for the local people and contributed the economic development of the region by providing sustainable energy resources.

A.6. Scale of the project

Large scale

A.7. Funding sources of project

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

A.8. Assessment that project complies with '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.

Response: 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."

The project is a renewable energy project and not gender sensitive project. The project does not impact women or men, negatively.

Question 2: Does the project align with existing country policies, strategies and best practices? Explain how.

Response: 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 signed the convention of International Labour Organization. The related articles are 100 and 111. The project owner respects Article 5/8425 of Labour Law;

which states no discrimination based on gender, race, religion, sexual orientation or any other basis is allowed.

Question 3: Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.

Response: The Project shall complete the following gender assessment questions below:

- 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 does not reduce access to or control of resources for women.

- 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 does not involve in any form discrimination in any kind of form. The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.

- 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, child care duties, low literacy or educational levels, or societal discrimination)?

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.

- 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 or men. Employment is based on the job requirement and the demographics of the local area.

- 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, project leads to increased availability of electricity in the regional grid and thus enhancing the living standards.

- 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?

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.

- 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?

The project is not complicit in restrictions of any freedoms and rights; and does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.

- Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?

No, as being a renewable energy project, the project does not expose women and girls to further risks or hazards.

Question 4: Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure Requirements? Explain how.

Response: In order to develop the project as a Gold Standard VER project, the stakeholder meetings were organized on 14-15.07.2009 by the Consultant in Üvecik Village and Mahmudiye Town separately in line with Gold Standard Requirements. There were no negative comments from the stakeholders during the period of construction and operation phases.

The online site visit for the renewal crediting period with DOE was made on 02/12/2020. The local people were interviewed and the general outcome of the interviews was positive verbally.

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Since the GS continuous input mechanism by which any complaint or a request could be communicated with the project owner is available and the contact information of the plant responsible exist at the Mukhtar, the project owner and local community are always in touch. The project owner regularly checks with the Mukhtar if any complaint or a request exist .Any complaint or need from the local community could directly be received by the project owner and appropriate contributions or improvements are made to the local community.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

Project type: Type I – Renewable Energy Projects

Category: D – Electricity Generation for a System

Methodology: ACM0002: Grid-connected electricity generation from renewable sources-Version 20.0³

Sectoral Scope: 01 Energy industries (renewable - / non-renewable sources)

ACM0002 refers to:

- Tool to calculate the emission factor for an electricity system, Version 07.0
- Tool for the demonstration and assessment of additionality, Version 07.0.0
- Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Version 03.0
- 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
- ~~“Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period”, (EB46, Annex 11)~~

B.2. Applicability of methodology

The methodology ACM0002: Grid-connected electricity generation from renewable sources is applicable to grid-connected renewable power generation 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 e) involve a replacement of (an) existing plant(s)/unit(s).

The project activity installs a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield), ACM0002: Grid-connected electricity generation from renewable sources is applicable. The applicability criteria are listed and justified below:

Table 3- Applicability of ACM0002

Applicability Criteria	Justification
This methodology is applicable to grid-connected renewable energy power generation 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 is installation of a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity.

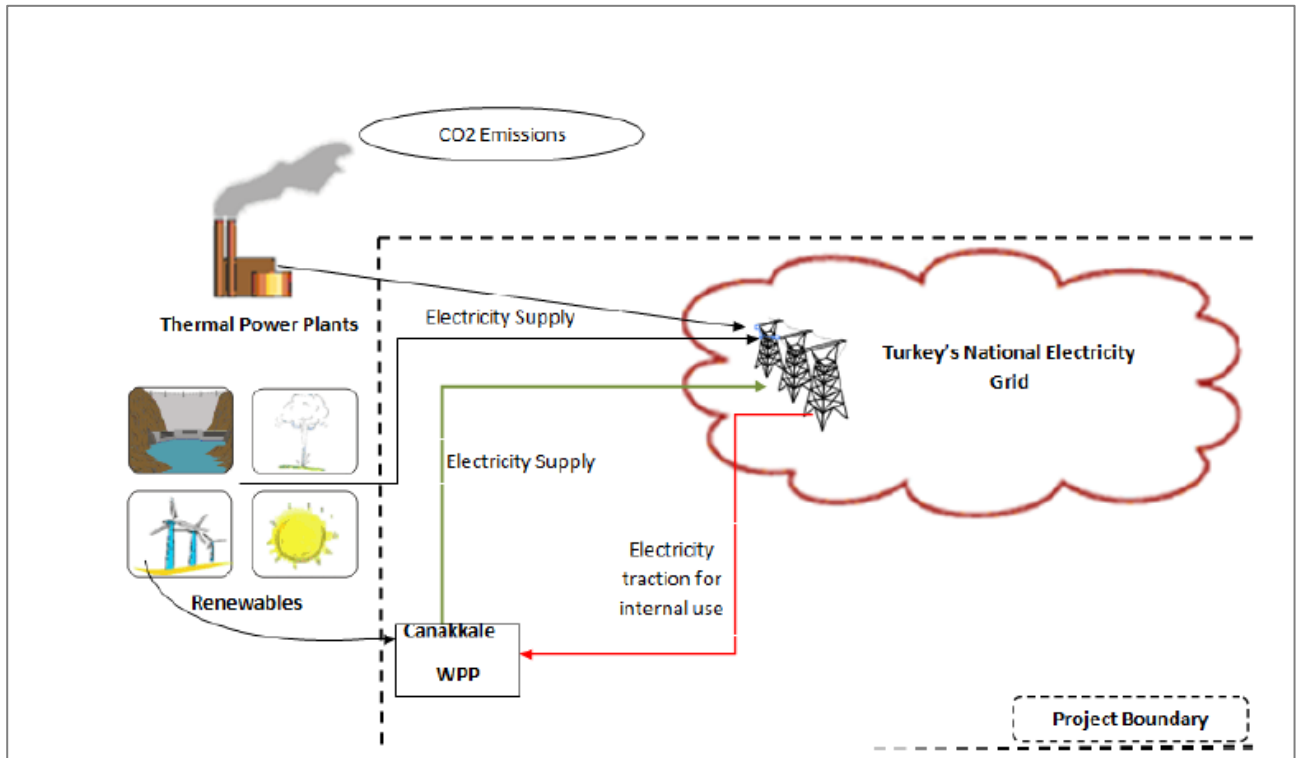
³ <https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

(e) Involve a replacement of (an) existing plant(s)/unit(s)	
In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (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 (3), is greater than 4 W/m²; or (c) The project activity results in new single or multiple reservoirs and the powerdensity, calculated using equation (3), is greater than 4 W/m².	The project is not a hydropower plant.
If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project has only renewable component with an installed capacity equal to 29.9 MW.
Combined heat and power (co-generation) systems are not eligible under this category.	The project is not a combined heat and power system.
In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units	The project is not an additional to an existing renewable power generation facility.
In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The project is not a retrofit, rehabilitation or replacement of an existing facility and is a newly built wind power plant.
In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then thebaseline for the electricity component shall be in accordance with procedure prescribedunder this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energyproduction with or without electricity” shall be explored.	The project is not a landfill gas, waste gas, wastewater treatment and agro-industries project.

B.3. Project boundary

The project boundary encompasses the physical, geographical site of the renewable generation source. The wind power plant with all installation is the project boundary.

As the electricity generated by the project displaces the electricity generated by national grid, the baseline boundary ~~is includes the project and all power plants/units connected physically to the national grid (electricity system) that the project is connected to.~~ defined as the national grid. This includes the project site and all power plants connected physically to the national grid and excludes the off-grid power plants. Please see the diagram below:



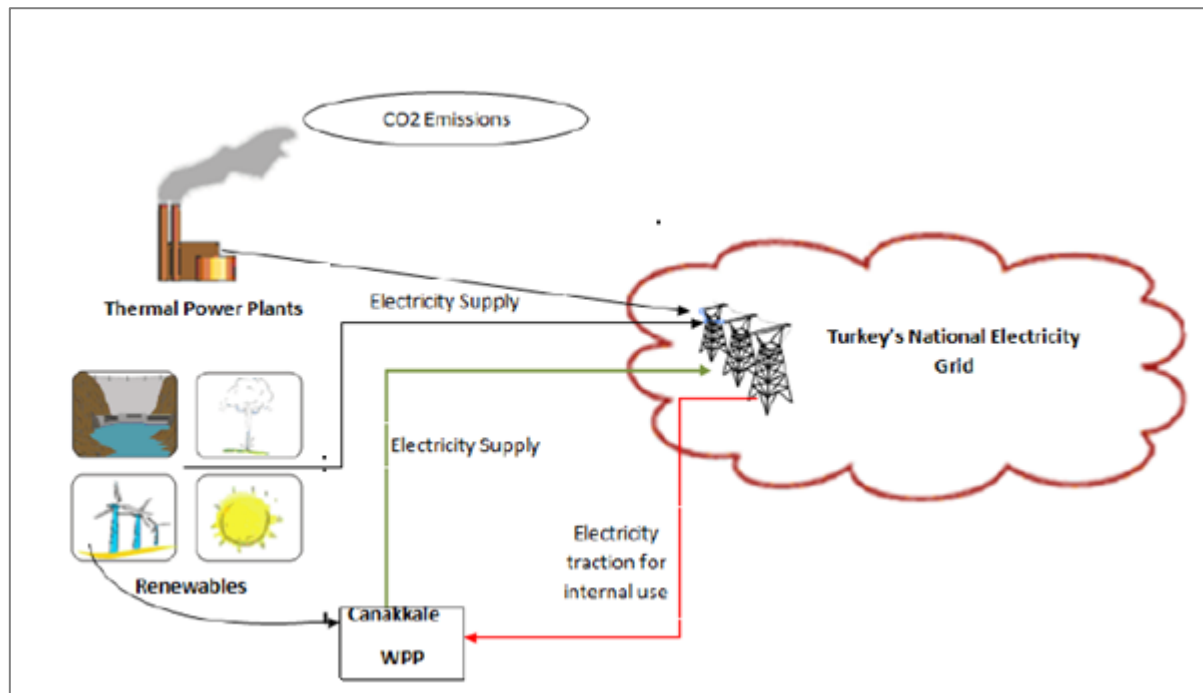


Figure 2. Project Boundary

The greenhouse gases and emission sources included in or excluded from the Project boundary are compiled as below:

Table 4-Emission Sources Included or Excluded From The Project Boundary

Source		Gas	Included?	Justification/Explanation
Baseline	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO2	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 will be accounted for in baseline calculations.
		CH4	No	Minor emission sources.
		N2O	No	
Project Activity	Emissions as a result of Project Activity	CO2	No	Not Applicable

B.4. Establishment and description of baseline scenario

According to ACM0002 (Version 20), if the project activity is the installation of a new grid-connected renewable power plant, the baseline scenario is 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.

As it may be seen in Figure 3. The development of Turkey's installed capacity by primary energy resources between the years, 2009-2019⁴, the electricity generation has mainly been done by fossil fuel fired power plants in Turkey. Total installed electricity generation capacity in Turkey has reached 91,267 megawatts (MW) as of 2019. As having a share of 8.32%, wind power projects have an installed capacity of 7,591.2 MW.

⁴ <https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri>

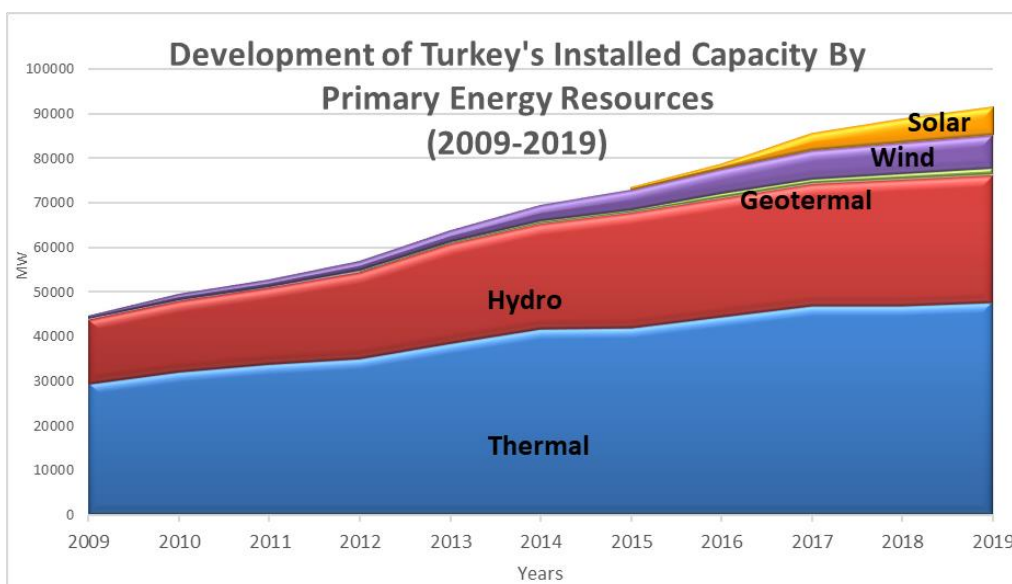


Figure 3. The development of Turkey's installed capacity by primary energy resources, 2009-2019

Table 5 shows the comparison of renewable electricity generation share in Turkey total electricity generation and the distribution of the renewable energy resources within this share between the years of 2009 and 2019. It's obvious that the renewable electricity generation has doubled during this period. Hydro has still the biggest share with 67.15%, whereas solar and wind have the portions of %6.99 and 16.43%, respectively. Geothermal and biomass have the smallest portions with 6.77% and 2.66%, respectively.

Table 5-Comparison of Renewable Electricity Generation Share In Turkey Total Electricity Generation, 2009-2019

YEARS	HYDRO	GEOTHERMAL	WIND	SOLAR	BIOMASS	RENEWABLE SHARE IN TOTAL GENERATION %
2009	94.25%	1.14%	3.92%	-	0.69%	19.6%
2019	67.15%	6.77%	16.43%	6.99%	2.66%	43.5%

In reference to 5-year capacity projection⁵, it is clear that fossil fuels will remain the main sources for electricity generation through until 2024. Fossil fuels will continue to dominate the market. Hydro will account for 15% of the mix whereas all non-hydro renewable combined (geothermal/ biomass/ solar/ wind) will only account for 11% of all electricity generation capacity. This projection is consistent with continuing fossil fuel dependent characteristics of Turkish electricity sector.

⁵ <https://webapi.teias.gov.tr/file/abeac87d-3abc-4532-9cf4-d6f3a9d34c17?download>

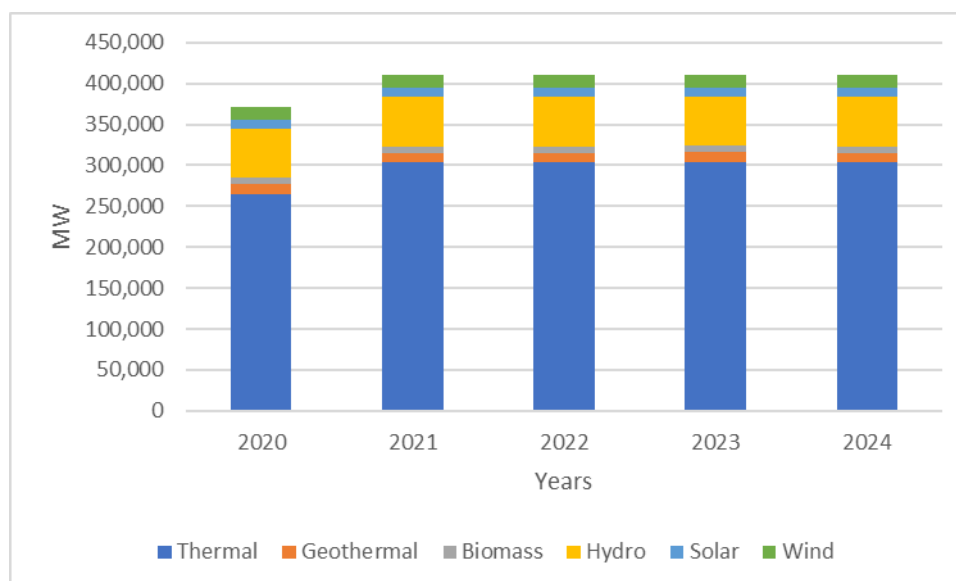


Figure 4. 5-year capacity projection

The current baseline has been updated with the latest data and projections available by the official bodies. It's clear that the baseline scenario is still valid for the second crediting period.

B.5. Demonstration of additionality

For the demonstration of additionality, "Tool to for the Demonstration and Assessment of Additionality Version 7.0.0" has been applied to the project. The additionality has been evaluated in first validation and that the information is repeated in this PDD and no new additionality assessment is done.

Step 1- Identification of alternatives to the project activity consistent with current laws and regulations

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

The project owner is a well-known company in the power sector and active in generation, wholesale and trading and distribution of electricity. The alternatives are defined related to the investor as per footnote 7 of the version 7.0.0 of the additionality tool⁶:

- 1) The project activity taken without VER: The investment is not financially attractive and comprises potential risks as described below. Therefore, this alternative is not realistic.
- 2) Building a new power plant utilizing other renewable resource: The Electricity Market License Regulation gives priority to local resources with low environmental impact to generate electricity and therefore other renewable resources are considered as alternatives to the proposed project.

The nearest river to the project site is Karamenderes River and its tributaries. There is currently one dam constructed in the east of Karamenderes River; namely Bayramiç Dam for the purpose of irrigation rather than electricity generation.

Canakkale Province also has geothermal resources but they are not eligible for electricity generation. Those resources are located in Ayvacık, Biga, Lapseki, Çan (Hıdırlar Uyuz and kestanbol-Akçağaçlı), Bayramiç (Tuzla) Towns¹⁴. None of those resources are eligible for electricity generation.

Geothermal resources eligible for electricity generation are located on the West of the country and there are three power plants operational in that region. Using solar power or biomass for electricity

⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

generation is still in the infancy state in Turkey. There are no solar or biomass power plants in Turkey due to insufficient incentives

Wind power plants do not consume any surface or groundwater, take up less space allowing land for other purposes and generate electricity in remote locations.

Therefore, utilizing other renewable resources is not considered as an alternative scenario to the proposed project activity.

- 3) No activity: In case no project activity is taken, the same amount of electricity will be generated by the existing grid to supply the increasing demand of the country. This alternative is the same as baseline scenario, which is described above as electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.

Outcome of Step 1 a) The only realistic and credible scenario is that the same amount of electricity will be generated by the existing grid, which is the same as baseline scenario.

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

All alternatives to the project activity are in compliance with the existing laws and regulations which are described below in Table - [65](#).

Table [65](#)- Relevant laws and regulations applicable to the project and alternatives

Relevant Laws	Number/ Enactment Date	Aim and Scope
Environmental Law *Environmental Impact Assessment Regulation	Nr. 2872 / 17/07/2008	The approval is requested for power plants from Ministry of Environment and Forest as Electricity Licence Regulation requests project to be in line with the environmental law.
Electricity Market Law *Electricity Licence Regulation *Electricity Market Balancing and Conciliation Regulation	Nr. 4628 / 03/03/2001	Regulating procedures of electricity generation, transmission, distribution, wholesale, retail for legal entities. Two regulations issued under the law; one for generation licence and the other for market price balancing and conciliation.
Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy	Nr. 5346 / 18/05/2005	Aims to extend the utilization of renewable energy for electricity generation and identifies method and principles for power generation from renewable resources in an economical and conservative manner as well as certification of the electricity generated from renewable resources.
Energy Efficiency Law	Nr. 5627 / 02/05/2007	Identifies method and principles for industry, power plants, residential buildings and transport to imply necessary measures for energy efficiency during electricity generation, transmission, distribution and consumption.

Outcome of Step 1b: The only realistic scenario is the supply of same amount of electricity from the existing grid, which is in compliance with the laws and regulations.

Step 2 - Investment analysis

The investment analysis below aims to show that “the project activity is not (a) the most economically and financially attractive”.

Sub-step 2a - Determine appropriate analysis method

(1) There are three options for investment analysis method:

- Simple Cost Analysis
- Investment Comparison Analysis and
- Benchmark Analysis

As the project gains revenue from the sale of generated electricity, Simple Cost Analysis is not applicable. Investment Comparison Analysis is also not applicable as no alternative investment is point at issue. Therefore, Benchmark Analysis will be used for the evaluation of the project investment.

Sub-step 2b - Option III-Applied benchmark analysis

For the purpose of benchmark analysis Project IRR before tax has been chosen as the indicator.

There are no available benchmarks for wind power plant projects in Turkey. The credibility of a particular project is evaluated on the basis of several factors including cost recovery period, risk of postponed commissioning and credibility of the project owner.

1) World Bank loan reports

World Bank has released 500 M USD fund for private sector renewable energy and energy efficiency projects on May 2009. The loan is given through two local banks, namely, Turkish Industrial development Bank (TSKB) and Turkish Development Bank (TKB). The fund is available for wind power plants. In the project appraisal report it is the threshold IRR for wind power plants are taken as 15%⁷. That benchmark reflects the bankers view on the Equity IRR including risks on such investments.

2) Local Commercial Lending Rates

As the tool implies local commercial lending rate is appropriate benchmarks for a project IRR, therefore it could be chosen as a benchmark.

The lending rates for medium term investments are provided by Turkish Development Bank (TKB) to State Planning Organization. The maturity of loan, depending on the project characteristics and may change between 5 to 7 years with 2 years grace period.

State Planning Organization publishes “Main Economic Indicators” on a monthly basis. The lending rates for January-May 2009 have been given in Table [Z6](#).

Table [Z6](#)- Loan Interest rates for medium term investment loans

Turkish Development Bank (TKB)
Interest rates for credits

⁷ <http://documents1.worldbank.org/curated/en/112271468311114629/pdf/468080PAD0P112101Official0Use0Only1.pdf> (Annex.11, Article 29, page 80)

Date	Month	Medium Term Investment Rate(%)
2009	1	19
	2	19
	3	19
	4	19
	5	19

The investment decision was taken on the 25.03.2009. Therefore, the interest rate for March is 19% which reflects the banker's expectations for a similar investment.

3) Weighted Average Cost of Capital

The third alternative for benchmark is advised to be WACC for project IRR as stated in the referenced tool. The expected return on capital should be higher than the cost of capital for an investment to be worthwhile. The cost of capital is the rate of return that capital could be expected to earn in an alternative investment of equivalent risk. If a project is of similar risk to a company's average business activities it is reasonable to use the company's average cost of capital as a basis for the evaluation. A company's securities typically include both debt and equity, one must therefore calculate both the cost of debt and the cost of equity to determine a company's cost of capital.

Calculation of Cost of Equity:

In order to calculate the cost of equity, the approach presented in the paper "Estimating equity Risk Premiums" by Prof. Damodaran is taken. He is a Professor of Finance at the Stern School of Business at Newyork University and well known as author of several widely used academic and practitioner texts on Valuation, Corporate Finance and Investment Management. Most of the parameter used in calculations are taken from the data presented in his web site.

Since the private sector inclusion to the energy market is very early in Turkey, compared to mature markets in other countries, we assume that all companies investing a emerging market would be equally exposed to country risk. The following formula is used for expected cost of equity:

$$\text{Expected cost of Equity} = \text{Risk free rate} + \beta * (\text{Country Risk}) + \text{Equity Market Risk}$$

1) Choice of Risk free rate:

It is stated in the referenced paper that the risk free rate chosen should match up with the duration of the cashflows being discounted and long-term default free government bond rate are generally preferred in corporate finance and valuation. Therefore, the risk free rate is taken from the lowest yielding bonds in the particular market, i.e. government bonds. The rate of Eurobond XS0285127329 with a due date 02.04.2019 has been chosen as the duration of the cash flow is 10 years. The rate on 25.03.2009 has been taken as the risk free rate.

2) Choice of beta:

There are four power generating and trading companies under trade in Istanbul Stock Exchange and Electricity Index is calculated as 0.778 for year 2008 by Bloomberg which is one of the well-known data supplier to the financial market.

3) Choice of Country Risk and Equity Market Risk:

One of the simplest and most easily accessible measure of the country risk is the rating assigned to a country's debt by a ratings agency. These rating measure default risk but are they are affected by many of the factors that drive equity risk. The country risk for Turkey has been taken from updated data in 2008 by Prof. Damodoran. The equity market risk for US, including average of historical spreads over 5 years has been used from the same data sheet.

The following parameters are used for calculation:

Table 87- Parameters for Expected cost of Equity

Parameter	Value	Source
Risk free rate	7.63%	Ziraat Bank, Long term Eurobond rate, (XS0285127329) on 25/03/2009 ²⁶
Beta	0.778	Beta for electricity market in Turkey in 2008, Bloomberg
Country Risk	7.88%	Prof. Damodaran, Risk Premium for Other Markets, 2008, Country Risk Premium for Turkey ²⁷
Equity Market Risk	5.00%	Prof. Damodaran, Risk Premium for Other Markets, 2008, Equity Risk Premium for US market
Expected Cost of Equity	18.76%	Calculated

Calculation of Cost of Debt:

The loan for the project is taken in EURs however the interest rate is not fixed and recalculated on each scheduled payment date. Therefore, the cost of debt ratio has been taken from the interest rate for EUR deposits for a year on March 2009 from the Undersecretariat of Treasury in Turkey; which is 7.3%⁸.

Calculation of WACC:

The Weighted Average Cost of Capital (WACC) for the project has been calculated by the following formula:

$$WACC = CD(1 - T_c) * (D/V) + CE * (E/V)^9$$

The parameters are defined below:

Table 98- Parameters for Expected cost of Equity

Parameter	Value	Source
CD, Cost of Debt, (r_D)	7.3%	Interest rate for deposits in EUR for a year on March 2009, Undersecretariat of Treasury ¹⁰ .
D/V, percentage of financing that is debt	70.3%	Calculated
E/V, percentage of financing that is equity	29.7%	Calculated
CE, Cost of equity, (r_E)	18.76 %	Calculated

⁸ <https://www.hmb.gov.tr/>

⁹ https://www.answers.com/Q/What_is_the_formula_for_calculating_wacc

¹⁰ <https://www.hmb.gov.tr/>

T _c , Average business revenue tax	0	Since the project IRR is calculated on before-tax basis for the project, revenue tax is not included in the calculation.
WACC	10.7%	Calculated

In order to follow a conservative approach, the WACC as 10.7% is accepted as the benchmark for the proposed project.

Sub-step 2c - Calculation and comparison of financial indicators

The “Guidance for the assessment of investment analysis”¹¹ implies that:

“6. Guidance: Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. “

The following table summarizes the financial figures for the project operation:

Table 109- Summary of financial data

Parameter used for financial analysis	Unit	Value	Source
Expected Electricity Generation	MWh	91,570	<u>The registered PDD, approved for the first crediting period of the Project Activity</u>
Total Investment	EUR	41,822,200	Lender’s Construction and Environmental Monitoring Report and Turbine Purchase Contracts
Operational Cost	EUR	1,016,073.28	Service contract
Revenues	EUR/year	5,036,350	Electricity revenues were estimated based on the wholesale price given by Renewable Energy Law
Exchange rate	EUR/TRY	0.4486	Monthly average exchange rate for March 2009: http://www.oanda.com/currency/average
Electricity tariff	EURcent/kWh	5.5	Guaranteed long term price by Renewable Energy Law

Depreciation calculation (fair value) has been included to the project IRR calculation. Depreciation rate for the construction has been applied in line with the local regulations¹². The depreciation calculation for the electromechanical equipment has been realised for 20 years taking into account the operational lifetime of the equipment as stated in the turbine certificate. The technical lifetime of the quipment exceeds the crediting period for which renewal is requested. The continuation of the use of current baseline equipment is technically possible.

¹¹ http://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf

¹² Please see:
<http://archive.ismmmo.org.tr/docs/yayinlar/kitaplar/malirehber2012/z%20amortisman%20oranlari.pdf>

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The Internal Rate of Return (IRR) before taxation for the project is calculated as 7.25% without the ER revenue. Correspondingly, the IRR has been calculated as 8.35% with the carbon revenues. In other words, even after the acquisition of carbon revenues, the IRR is still much lower than the benchmark chosen, 10.7%.

As a result, the revenue acquired from the operation of the power plant is not financially attractive to do the investment. Therefore, it is contended that the VER revenues are required to make the project more financially attractive. In addition to that, while the IRR with VERs still remains lower than the financial benchmark of 10.7%, the Project Developer will also benefit from the following intangible benefits that VERs provide:

- A third party review of project documents will give extra confidence to both investors and financiers.
- Enhanced corporate green image of the project developer through its contribution to a clean source of electricity and the diversification of electricity sources in Turkey, which broadens stakeholder confidence.

Sub-step 2d - Sensitivity analysis

The sensitivity analysis is applied in order to show that investment decision is not the most attractive alternative financially.

- Investment Cost
- Operating Cost
- Electricity Sales revenue

For a range of $\pm 10\%$ fluctuations in parameters above as advised in “Tool for the demonstration and assessment of additionality”, Table 110 below has been obtained.

Table 110- Sensitivity analysis for the project IRR

IRR w/o carbon	-10%	-5%	5%	10%
Investment Cost	8.54	7.87	6.67	6.14
Operational Cost	7.55	7.40	7.10	6.95
Electricity Revenue	5.76	6.51	7.96	8.67

The project IRR becomes 8.67 % with a 10% rise in sales of electricity and 8.54 % with a 10% decrease in investment costs. As a result, the project could be competitive either a rise in price of electricity occurs or the investment cost decrease.

The change in whole sale price has been shown in the graph below. The electricity market is under privatization process since 2003 and the share of public on installed capacity decreased from 78% in 2001 to 46% in 2009. During 2009-2010, 20% of the electricity trade was done by balancing market where supply-demand ratio determines the unit price. This has reduced the volatility in the market and was a first step towards a more competitive market with acceptable prices.

The wholesale price applicable on March 2009 was 12.62 Krş/kWh and rose to 15.28Krş/kWh at the end of the year. During the period 2009-early 2011, the average price was 14.12 Krş/kWh and the deviation from the average was 1.16 Krş/kWh, i.e. less than 10%. Therefore, a deviation of 10% would be acceptable for sensitivity analysis.

On the other hand Renewable Energy Law assumes the price of electricity generated by wind power resources as 5.5 EURcents/kWh, which is taken by most of the bankers for long term investment analysis. The electricity price should be around 7.26 EURcent/kWh (32% higher Than 5.5 EURcent/kWh) to hit the benchmark of 10.7%. The highest price observed was 6.85EURcent through the development of the free market as could be seen on the graph; which hits an IRR of 10.05% and would be still less than the benchmark.

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The investment cost is not likely to decrease as it is fixed with the contract. On the other hand, the cost may increase due to the unexpected expenses, i.e. contingency, faced by the project. Still, the sensitivity analysis has been carried out within the range -10%-10% deviation. In addition, the operational cost is fixed by the contract on the basis of electricity generation; therefore change in the operational cost is not expected. In conclusion, the above benchmark and accompanying sensitivity analyses reveal the fact that no alternative scenario, with or without VER revenues, can make the project pass the benchmark IRR expectation. Therefore, the project is not financially attractive without VER revenues.

Step 3: Barrier analysis

This step is not implemented for the project.

Step 4: Common practice analysis

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

According to the requirements of common practice:

Projects are considered similar if they are in the same country/region and rely on a broadly same technology, are of similar scale and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing.

Table 129 below lists the wind power plants under operation by 01 March 2011.

No	Name of Windfarm	Windfarm/Windpark Operator	Generating Capacity (MW)	Number of Turbines	Location	VER standard
1	CESME RES	Alize Enerji Elektrik Üretim A.Ş.	1.50	3	İzmir-Çeşme	BOT
2	ARES	Ares Alaçatı Rüzgar Enj. Sant. San. ve Tic A.Ş	7.20	12	İzmir Çeşme	BOT
3	BORES	Bores Bozcaada Rüzgar Enj. Sant San. Ve Tic A.Ş	10.20	17	Canakkale - Bozcaada	BOT
4	İNTEPE RES	Anemon Enerji Elektrik Üretim A.Ş.	30.40	38	Canakkale-İntepe	GS347
5	KARAKURT RES	Deniz Elektrik Üretim Ltd. Şti.	10.80	6	Manisa-Akhisar	VER
6	BURGAZ RES	Doğal Enerji Elektrik Üretim A.Ş.	14.90	13 (800kW) + 5 (900kW)	Canakkale - Gelibolu	GS439
7	SAYALAR RES	Doğal Enerji Elektrik Üretim A.Ş	34.20	38	Manisa-Sayalar	GS369
8	CATALCA RES	Ertürk Elektrik Üretim A.Ş	60.00	20	İstanbul-Çatalca	GS367
9	YUNTDAG RES	İnnores Elektrik Üretim A.Ş.	42.50	17	İzmir-Aliaga	GS352

10	KEMERBURGAZ RES	Lodos Elektrik Üretim A.Ş.	24.00	12	İstanbul-Gaziosmanpaşa	GS503
11	MAZI- 1	Mare Manastır Rüzgar Enerjisi Sant. San. Ve Tic. A.Ş	39.20	49	İzmir-Çeşme	GS368
12	SUNJUT RES	Sunjut Sun'i Jüt San. ve Tic A.Ş.	1.20	2	İstanbul-Hadımköy	BOT
13	TEPERES	Teperes Elektrik Üretim A.Ş.	0.85	1	İstanbul-Silivri	BOT
14	BANDIRMA RES	Yapısan Elektrik Üretim A.Ş.	30.00	20	Balıkesir-Bandırma	VER+521
15	SAMLI RES	Baki Elektrik Üretim Ltd. Şti.	90.00	30	Balıkesir-Şamlı	GS351
16	DATCA RES	Dares Datça Rüzgar Enerjisi Sant. Sanayi ve Ticaret A.Ş	29.60	36	Muğla-Datça	GS438
17	SEBENOBA RES	Deniz Elektrik Üretim Ltd. Şti.	30.00	15	Hatay-Samandağ	VER+002
18	AKBUK RES	Aynen Enerji A.Ş	31.50	15	Aydın-Didim	GS436
19	CAMSEKI RES	Alize Enerji Elektrik Üretim A.Ş.	20.80	10 (2000kW) + 1(800kW)	Canakkale - Ezine	GS399
20	KELTEPE RES	Alize Enerji Elektrik Üretim A.Ş.	20.70	23	Balıkesir - Susurluk	GS437
21	GOKCEDAG RES	Rotor Elektrik Üretim A.Ş.	135.00	54	Osmaniye-Bahçe	GS474
22	DÜZOVA RES	Ütopya Elektrik Üretim Sanayi ve Ticaret A.Ş	30.00	12	İzmir-Bergama	GS672
23	MAZI-3	Mazi-3 Rüzgar Enerjisi Santrali Elektrik Üretim A.Ş	30.00	12	İzmir-Çeşme	GS388
24	AYYILDIZ RES	Akenerji Elektrik Üretim A.Ş.	15.00	5	Balıkesir-Bandırma	GS634
25	BANDIRMA RES	Borasco Enerji ve Kimya Sanayi ve Ticaret A.Ş	60.00	20	Balıkesir-Bandırma	GS744
26	SOMA 1 RES	Soma Enerji Elektrik Üretim A.Ş.	88.20	98	Manisa-Soma	GS398
27	BELEN RES	Belen Elektrik Üretim A.Ş.	36.00	12	Hatay-Belen	GS390
28	SARIKAYA RES	Alize Enerji Elektrik Üretim A.Ş.	28.80	14 (2000kW) + 1(800kW)	Tekirdağ-Şarköy	GS577
29	KOCADAG- 2	Kores Kocadağ Rüzgar Enerji Sant. Üretim A.Ş	15.00	6	İzmir-Urla	GS601

30	BANDIRMA- 3 RES	As Makinsan Temiz Enerji Elektrik Üretim San. Ve Tic. A.Ş.	24.00	10	Balıkesir-Bandırma	GS683
31	MERSİN RES	Akdeniz Elektrik Üretim A.Ş.	33.00	11	Mersin-Mut	GS753
32	BOREAS -1 ENEZ RES	Boreas Enerji Üretim Sistemleri A.Ş.	15.00	6	Edirne-Enez	GS702
33	ALIAGA RES	Bergama RES Enerji Üretim A.Ş.	90.00	36	İzmir-Bergama, Aliğa	GS735
34	SENBÜK RES	Bakras Enerji Elektrik Üretim Ve Tic. A.Ş.	15.00	5	Hatay-Belen	GS733
35	ZİYARET RES	Ziyaret RES Elektrik Üretim San ve Tic. A.Ş.	35.00	14	Hatay-Samandağ	GS617
36	SOMA RES	Bilgin Rüzgar Santrali Enerji Üretim A.Ş.	90.00	36	Manisa-Soma	GS655
37	KUYUCAK RES	Alize Enerji Elektrik Üretim A.Ş.	25.60	14	Manisa-Kırkağaç	GS576
38	SARES RES	Garet Enerji Üretim ve Ticaret A.Ş.	22.50	9	Canakkale-Ezine	GS963
39	TURGUTTEPE RES	Sabaş Elektrik Üretim A.Ş.	22.00	11	Aydın-Çine	GS610
40	CANAKKALE RES	Enerjisa Enerji Üretim A.Ş.	29.90	13	Canakkale-Ezine	GS906
41	SUSURLUK RES	Alentel Enerji A.Ş.	45.00	18	Balıkesir - Susurluk	GS854

The list includes Built, Operate and Transfer and Build Operate power plants. Those model of incentives were implemented in 1980s and provided financial incentives for the private sector:

- Energy Fund was established by the government in order to subsidise the financial difficulties faced by the companies.
- Guarantee Contract was signed between the Under-secretariat of Treasury and the investment companies on the terms that the electricity will be purchased by Treasury in case the producer could not sell it to any governmental institution.
- Those purchase contracts may be up to 99 years for BOTs and 20 years for Bos.

Under the new Electricity Market Law came in force in 2001, the investment models were removed and the Energy Fund was ended.

The rest of the wind power plants built after 2001 by the private sector benefits from carbon revenue and excluded from the common practice analysis.

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

All the wind power plants operational in the country benefit from carbon revenue and are excluded from common practice analysis. Therefore, Canakkale WPP is not a common practice.

Conclusion:

The project activity satisfies all the criteria of “Tool for the demonstration and assessment of additionality”. Therefore, the proposed project is additional.

Ongoing Financial Need

Previously issued VERs have given support to the ongoing financial sustainability of the project. Both low demand for VERs and a sharp decrease in prices caused Project Owner not to benefit from carbon revenue as expected. In spite of that the sales prices were so lower than the expected ones at the investment time, sold VERs provided contribution of the ongoing financial sustainability of the project. Please see Figure 5 for the VER income rate against the commercial income:

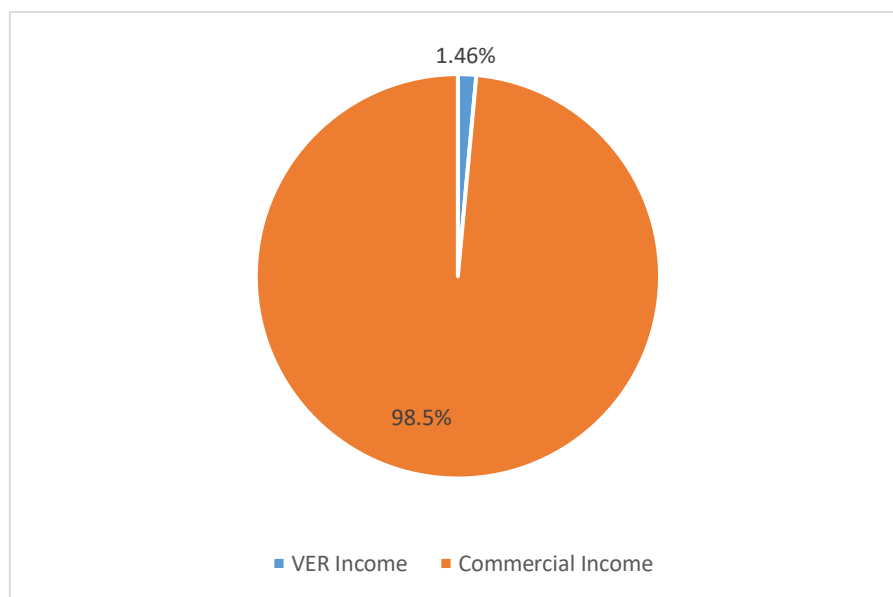


Figure 5. Rate of VER Income vs Commercial Income

Milestones of the project activity is listed as below:

Table 1+3-Time Schedule of the Project Development

Activity	Date
License	21.02.2008
Consultancy agreement for carbon asset development	19.12.2008
Finance secured	02.03.2009
Board decision	25.03.2009
Turbine purchase and service agreement	01.04.2009
Stakeholder meeting	14-15.07.2009
Feasibility study finalized	08.09.2009
EIA exemption letter	September.2009
Construction agreement	28.04.2010
Commissioning	11.02.2011

B.6. Sustainable Development Goals (SDG) outcomes

B.6.1. Relevant target for each of the three SDGs

- SDG 7 - Affordable and Clean Energy: 91,570 MWh of clean energy expected to be generated annually.
- SDG 8 - Decent Work and Economic Growth : The project provides employment opportunities to 3 people

- **SDG 13 - Climate Action** :The project would realize emission reduction of is 56,755 tonnes of CO₂eq approximately.

SDGs	Target ("T") and Indicators ("I")
Goal 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
Goal 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 T: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 I: 8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status
Goal 13 Climate Action	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

B.6.2. Explanation of methodological choices/approaches for estimating the SDG outcome

• **Goal 7 Affordable and Clean Energy**

The project produces electricity from renewable energy sources using wind as the power source and to contribute to Turkey's 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 is expected to generate 91,570 MWh annually. The project contributes to the following target 7.2. and following indicator 7.2.1.

• **Goal 8 Decent Work and Economic Growth**

During construction and operational period, the project has created employment opportunities for the local community. The project contributes the economic development of the region by providing sustainable energy resources.

Considering the operational phase, 3 personnel are working permanently. The target will be monitored by the number of full-time employees with the SGK records during the verification process. Due to job requirements and demographics of the project area, employment of woman and persons with disabilities has not been possible, yet.

The positions at the wind farm require skilled workers, which will be achieved by adequate training. Attendance records or training certificates will be provided during the verification process. The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments.

For the implementation of the project activity, female employees have various roles and responsibilities. Some of the roles taken by female employees may be seen as below These female employees are working at the central office as being responsible for all wind projects of the Project Proponent:

- Human resources management
- Processing IT infrastructure
- Payment and cash proceeds management

The project contributes to the following targets 8.5. ; 8.8. and following indicators 8.5.2.; 8.8.1.

- **Goal 13 Climate Action**

The annual emission reduction estimated by the project is 56,755 tonnes of CO₂eq, approximately. While this amount of emissions are mitigated, technology transfer is also realized as benefitting from wind energy.

The project contributes to improve the environmental situation in the region and in the country as avoiding fossil fuel-based electricity will enhance the air quality and help to reduce the adverse effect on the climate. Through renewable technologies and wind based electricity sustainable and climate friendly development is promoted.

The project contributes to the following target 13.3. and following indicator 13.3.2.

For the calculation of the emission reductions of the project activity, "Tool to calculate the emission factor of an electricity system" version 07.0.0. is taken into consideration.

Emission Reductions

According to the baseline methodology ACM0002, the emission reduction E_{Ry} by the project activity during a given year y is defined as;

$$E_{Ry} = BE_y - PE_y - LE_y \quad (1)$$

Where:

E_{Ry}: Emission reductions in year y (tCO₂e)

BE_y: Baseline Emissions in year y (tCO₂e)

PE_y: Project emissions in year y (tCO₂e)

LE_y: Leakage emissions in year y (tCO₂e)

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.

$$PE_y = 0$$

Leakage

Leakage emission (LE_y) is considered as "0" as suggested in AMS-I.D, Version 18.

Baseline Emissions

The baseline emissions are calculated as follows:

$$BE_y = EGPJ,y \times EF_{grid,y} \quad \text{Equation (2)}$$

where:

$BE_y =$	Baseline emissions in year y (t CO ₂)
$EG_{PJ,y} =$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh)
$EF_{grid,y} =$	Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (t CO ₂ /MWh)

The net electricity is measured continuously by a power meter at the grid interface and recorded monthly. EPIAS records are the source of the exact electricity generation of the project and the imports from the grid. The quantity of net electricity delivered to the grid is cross checked with the meter reading records (OSF forms- OSOS) which are provided to the company by TEIAS.

$$\frac{\text{Net electricity generation supplied by the project plant to the grid [MWh]}}{\text{Electricity supplied to the grid [MWh]}} = \frac{\text{Electricity consumption from the grid [MWh]}}{\text{Electricity supplied to the grid [MWh]}}$$

Calculation of $EG_{PJ,y}$

The project falls under the description greenfield power plants;

$$EG_{PJ,y} = EG_{PJ, facility,y}$$

where:

$EG_{PJ,y} =$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EG_{PJ, facility,y} =$	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

Calculation of $EF_{grid,y}$

$EF_{grid,y}$ is calculated according to the procedures described in the ‘Tool to calculate the emission factor for an electricity system, Version 07.0’.

Tool to calculate the emission factor for an electricity system” provides the following steps to calculate combined margin (CM) emission factor.

- Step 1: Identify the relevant electricity systems;
- Step 2: Choose whether to include off-grid power plants in the project electricity system (optional);
- Step 3: Select a method to determine the operating margin (OM);
- Step 4: Calculate the operating margin emission factor according to the selected method;
- Step 5: Calculate the build margin (BM) emission factor;
- Step 6: Calculate the combined margin (CM) emission factor.

The combined margin (CM) emission factor of Turkish National Transmission System has been published by the Ministry of Energy. The latest values belong to the 2018 statistics¹³. Please see B.6.4.

B.6.3. Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

SDG 7 : Affordable and Clean Energy

As the project is expected to generate renewable energy , it contributes to the following target 7.2. : “By 2030, increase substantially the share of renewable energy in the global energy mix” and the indicator 7.2.1.: “ Renewable energy share in the total final energy consumption”.

SDG 8 : Decent Work and Economic Growth

Considering the operational phase, the project contributes to the 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.”and the indicator 8.5.2.: ” Unemployment rate, by sex, age and persons with disabilities”.

The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments. And it would contribute to the target 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” and the indicator 8.8.1: “Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status”. Employees will be trained for each monitoring period.

SDG 13: Climate Action

The project contributes to the following target 13.3. and the indicator 13.3.2.

Following fixed ex-ante parameter may be seen as below:

Relevant SDG Indicator	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
Data/parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ /MWh

¹³ Please see https://enerjiapi.etkb.gov.tr/Media/Dizin/ETKB/Duyurular//0c6b62ea-bf2f-4fea-b9b3-28bc6f48ddf2_Bilgi_Formu_-_Web_Sitesi.pdf

Description	Emission factor of the Turkish grid determined ex-ante. It's been published by the Ministry of Energy for 2018.
Source of data	Ministry of Energy. Please see: https://enerjiapi.etkb.gov.tr/Media/Dizin/ETKB/Duyurular//0c6b62ea-bf2f-4fea-b9b3-28bc6f48ddf2_Bilgi_Formu_-_Web_Sitesi.pdf
Value(s) applied	0.6198
Choice of data or Measurement methods and procedures	Official data
Purpose of data	Calculation of the baseline emissions-to demonstrate contribution to SDG Target 13.3.: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	

B.6.4. Ex ante estimation of outcomes linked to each of the three SDGs

SDG13

~~Calculation of the~~ Operating Margin Emission Factor

It's been published as 0,6993 tCO₂/MWh by the Ministry of Energy¹⁴.

~~Calculation of the~~ Build Margin Emission Factor

It's been published as 0,3812 tCO₂/MWh by the Ministry of Energy¹⁵.

~~Calculating of the~~ Combined Margin Emission Factor

It's been published as 0,6198 tCO₂/MWh by the Ministry of Energy¹⁶.

Baseline Emissions

In accordance with ACM0002, the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor of the project grid.

¹⁴ Please see https://enerjiapi.etkb.gov.tr/Media/Dizin/ETKB/Duyurular//0c6b62ea-bf2f-4fea-b9b3-28bc6f48ddf2_Bilgi_Formu_-_Web_Sitesi.pdf

¹⁵ Please see https://enerjiapi.etkb.gov.tr/Media/Dizin/ETKB/Duyurular//0c6b62ea-bf2f-4fea-b9b3-28bc6f48ddf2_Bilgi_Formu_-_Web_Sitesi.pdf

¹⁶ Please see https://enerjiapi.etkb.gov.tr/Media/Dizin/ETKB/Duyurular//0c6b62ea-bf2f-4fea-b9b3-28bc6f48ddf2_Bilgi_Formu_-_Web_Sitesi.pdf

$$BE_y = EG_{PJ,y} \times EF_{grid,y} \quad \text{Equation (1)}$$

where:

BE_y = Baseline Emissions in year y (tCO₂e)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{grid,y}$ = Combined margin CO₂ emission factor for grid connected powergeneration in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system"(t CO₂/MWh)

$$\begin{aligned} BE_y &= 91,570 \times 0.6198 \\ &= 56,755 \text{ tCO}_2/\text{MWh} \end{aligned}$$

Project Emissions

Since the project activity is a wind project, $PE_y=0$

Leakage

In accordance with the ACM0002. (version 20), leakage is taken as zero since the project is a new power plant is taken as zero, $LE_y=0$

Emission Reductions

$$ER_y = BE_y - PE_y - LE_y \quad \text{Equation (9)}$$

$$ER_y = 56,755 \text{ tCO}_2/\text{MWh}$$

SDG7

Baseline estimate for Affordable and Clean Energy is 0. The project estimate is 91,570 MWh.¹⁷

SDG 8

Baseline estimate for Decent Work and Economic Growth is 0. The project estimate is 3.¹⁸

¹⁷ Please see the registered PDD

¹⁸ SGK records are available to the VVB.

B.6.5. Summary of ex ante estimates of each SDG outcome

SDG 7 : Affordable and Clean Energy

Table 1 42- Net Benefit to SDG 7

Year	Baseline estimate	Project estimate	Net benefit (MWh)
11.02.2018-10.02.2018	81,2840	81,2840	81,284
2019	-91,570 0	91,570 0	91,570
2020	-91,570 0	91,570 0	91,570
2021	-91,570 0	91,570 0	91,570
2022	-91,570 0	91,570 0	91,570
2023	-91,570 0	91,570 0	91,570
2024	-91,570 0	91,570 0	91,570
01.01.2025-10.02.2025	10,2850	10,2850	10,285
Total	640,9900	640,9900	640,990
Total number of crediting years	7		
Annual average over the crediting period	91,5700	091,570	91,570

SDG 8 : Decent Work and Economic Growth

The project has provided employment opportunities which would not exist at the local area in the baseline scenario. 3 personnel are expected to work permanently and thus the project and this contributes to the 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." and the indicator 8.5.2.: "Unemployment rate, by sex, age and persons with disabilities". The employees will be paid above minimum wage and better than local average.

The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments. Attendance records or training certificates will be provided for each monitoring period. The project would contribute to the target 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" and the indicator 8.8.1: "Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status. 2 trainings as "Occupational Health and Safety" and "Working at Heights Refresher" are given to the employees.

SDG13 :Climate Action

Table 1 52- Net Benefit to SDG 13

Year	Baseline estimate	Project estimate	Net benefit (t CO ₂ MWh)
11.02.2018-10.02.2018	50,379	0	50,379
2019	56,755	0	56,755

2020	56,755	0	56,755
2021	56,755	0	56,755
2022	56,755	0	56,755
2023	56,755	0	56,755
2024	56,755	0	56,755
01.01.2025-10.02.2025	6,375	0	6,375
Total	397,284	0	397,284
Total number of crediting years	7		
Annual average over the crediting period	56,755	0	56,755

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Relevant SDG Indicator	7.2.1 Renewable energy share in the total final energy consumption														
Data / Parameter	EGPJ,grid,-y,-facility														
Unit	MWh/yr														
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y														
Source of data	Direct measurement (EPIAS records)														
Value(s) applied	The annual electricity fed to the grid is estimated as 91,570 MWh.														
Measurement methods and procedures	The net electricity is measured continuously by a power meter at the grid interface and recorded monthly.EPIAS records are the source of the exact electricity generation of the project and the imports from the grid. The quantity of net electricity delivered to the grid is cross checked with the meter reading records (OSF forms-OSOS) which are provided to the company by TEIAS. Net electricity generation supplied by the project plant to the grid [MWh] = Electricity supplied to the grid [MWh] - Electricity consumption from the grid [MWh]														
Monitoring frequency	Continuous monitoring, hourly measurement and at least monthly recording Meters information: <table><tr><td>Specifications</td><td>Main meter</td><td>Spare Meter</td></tr><tr><td>Manufacturer:</td><td>ACTARIS</td><td>ACTARIS</td></tr><tr><td>Serial No:</td><td>53031805</td><td>53031806</td></tr><tr><td>Accuracy Class:</td><td>0.5 S</td><td>0.5 S</td></tr></table>			Specifications	Main meter	Spare Meter	Manufacturer:	ACTARIS	ACTARIS	Serial No:	53031805	53031806	Accuracy Class:	0.5 S	0.5 S
Specifications	Main meter	Spare Meter													
Manufacturer:	ACTARIS	ACTARIS													
Serial No:	53031805	53031806													
Accuracy Class:	0.5 S	0.5 S													

QA/QC procedures	• A back-up meter is used for crosschecking the accuracy and both meters are periodically tested. • 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 fulfill, which are categorized according to the installed capacity. The periodical test or maintenance is under the responsibility of TEİAŞ. Since TEİAŞ meters are sealed by TEİAŞ, the project proponent cannot intervene with the devices. • The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. EPIAS records are crosschecked with the meter reading protocols (OSOS-OSF forms) • In addition to metering devices every single wind turbine generation is monitored and the data will be stored through a SCADA system.
Purpose of data	Calculation of emission reductions SDG 7.2. By 2030, increase substantially the share of renewable energy in the global energy mix
Additional comment	

Relevant SDG Indicator	8.5.2 Unemployment rate, by sex, age and persons with disabilities
Data / Parameter	Number of employment
Unit	Number
Description	Number of people permanently working for the operation of the project
Source of data	Social Security System (SGK)
Value(s) applied	3
Measurement methods and procedures	Social Security System (SGK) records
Monitoring frequency	Once for each monitoring period
QA/QC procedures	SGK records of employees are provided during each monitoring period.
Purpose of data	SDG 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
Additional comment	

Relevant SDG Indicator	8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status
Data / Parameter	a) Number of trainings b) <u>Fair wage, working hours and occupational injuries</u>
Unit	a) Number b) <u>N/A</u>
Description	a) Number of training sessions held b) <u>The social security conditions provided to the employees</u>
Source of data	a) Attendance records or training certificates b) <u>Social Security Records</u>

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Value(s) applied	-
Measurement methods and procedures	a) Attendance records or training certificates b) Social Security Records
Monitoring frequency	Once for each year of operation
QA/QC procedures	a) Attendance records or training certificates are provided during each monitoring period. b) Social Security Records are provided during each monitoring period.
Purpose of data	Monitoring the trainings and working conditions to justify contribution to SDG 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	

Relevant SDG Indicator	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
Data / Parameter	ER _y
Unit	tCO ₂ /y
Description	Emission reductions by the project activity in year y (t CO ₂ /yr) In accordance with ACM0002, baseline emissions include CO ₂ from electricity generation in powerplants that are displaced due to the project activity. And baseline emissions correspond to emission reductions and are calculated as the net electricity generated by the project activity, multiplied with combined margin CO ₂ emission factor for grid connected powergeneration in year y.
Source of data	Both measured and calculated Emission reductions will be calculated as considering the EPIAS records for the net electricity generated and the emission factor for the grid, 0.6198 tCO ₂ /MWh, published by the Ministry of Energy
Value(s) applied	56,755 tCO ₂ ¹⁹
Measurement methods and procedures	Please check sections B.6.2-B.6.4 and B.7.3 for more detailed description of the monitoring plan.
Monitoring frequency	Once for each year of operation
QA/QC procedures	Please check section B.7.3 for the monitoring plan.
Purpose of data	Calculation of combined margin CO ₂ emission factor and thus the baseline emissions-to demonstrate contribution to SDG Target 13.3.: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Additional comment	

Relevant SDG Indicator	Safeguarding Principle Principle 9.10 : High Conservation Value Areas and Critical Habitats
Data / Parameter	Number of effected birds and bats
Unit	N/A

¹⁹This value could change depending on the electricity generated.

Description	<u>Site monitorings and recording of the same in log books for nests and carcasses by the Project Owner</u>
Source of data	<u>Monitorings of site staff – log books</u>
Value(s) applied	<u>N/A</u>
Measurement methods and procedures	<u>N/A</u>
Monitoring frequency	<u>Once for each year of operation</u>
QA/QC procedures	<u>N/A</u>
Purpose of data	<u>To monitor compliance to Safeguarding Principle Principle 9.10 : High Conservation Value Areas and Critical Habitats</u>
Additional comment	<u>=</u>

B.7.2. Sampling plan

N/A

B.7.3. Other elements of monitoring plan

The Project Owner will be responsible for the overall management of the monitoring procedures including recording, data collection and store. The consultant will calculate emission reductions based on these monitored data and prepare monitoring report.

According to the methodology applied, the electricity supplied to the national grid by the project and the electricity consumed by the project activity shall be monitored. The net electricity is the difference of the electricity supplied and consumed by the project and shall be taken into account for emission reduction calculations.

Two power meters are installed at the grid interface of the project. One is the main meter and the other is back-up meter of the main meter for cross-checking. Both meters are jointly inspected and sealed in order to be protected from interference by any of the parties.

The capacity of the transmission line connected is 154 kVA, the accuracy class for main power meter has been defined in the Communiqué for Power Meters as 0.5S class. The back-up meter has the same accuracy class of 0.5S. The calibration will be implemented in accordance with the related standard procedures (IEC-EN 62053-22 and 62053-23) by either Turkish Electricity Transmission Corporation (TEIAS) or the provider company in the name of TEIAS. The meters are calibrated on yearly basis. The latest calibration was made on 26/04/2019 .

TEIAS is performing remote reading of the meters and monthly power meter readings are the basis for monitoring net electricity fed into the grid. EPIAS records will be used as the source of net generated electricity value and meter reading forms or OSF forms issued by TEIAS will be used for the crosscheck.

The website of EPIAŞ (<https://cas.epias.com.tr/cas/login>) is accessible to Project owner with their unique user ID and password. Once accessed, the Project owner is able to call electricity generation and consumption reports of their own projects. The same reports are used by the Project owner for invoicing TEIAS. The electricity generation data is reported monthly basis.

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All data collected as part of monitoring will be archived electronically by the project owner and be kept at least for 2 years after the end of the last crediting period.

Considering the Sustainable Development Matrix Indicators stated in the first crediting period has been simplified in section B.7.1. The indicators not stated to be monitored separately during the second crediting period may be seen below.

No	Indicator	Explanation
1	Water quality and quantity	Domestic wastewater is collected in a impervious septic tanks and transferred by sewage truck to local municipality sewage system as per the "Regulation on Control of Water Contamination". The company has not discharged any wastewater to the surface or ground water.
2	Soil Condition	Discarded electronic equipments and used filters which contain hazardous materials, used fluorescent lamps and oil spills generated in the Project activity have been stored in Central Waste Accumulation Area properly and are transferred after the legally permitted temporary storage period via licensed company.
3	Other pollutants (Noise)	Noise Monitoring Reports were prepared and submitted during <u>both</u> the validation phase and operational phases of the project. The report comprises the operational phase of the project and According to the results of the study <u>regarding the operational phase</u> , it's been concluded that the measured values are below the permitted limits.
4	Biodiversity	Third party monitoring for spring season was performed.

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

28.04.2010 (date of signature of the works contract)

C.1.2. Expected operational lifetime of project

20 years

C.2. Crediting period of project

C.2.1. Start date of crediting period

Start date of the first crediting period: 11/02/2011

End date of the first crediting period: 10/02/2018

Start date of the second crediting period: 11/02/2018

End date of the second crediting period: 10/02/2025

C.2.2. Total length of crediting period

7 years, renewed twice

SECTION D. Safeguarding principles assessment

D.1. Analysis of social, economic and environmental impacts

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
SOCIAL & ECONOMIC SAFEGUARDING PRINCIPLES AND REQUIREMENTS				
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.	Yes No	1. Turkey is a party to European Convention on Human Rights since 18.May. 1954. ²⁰ 2. The project owner respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in Human Rights abuses.	Not required
2– Gender Equality and Women’s Rights	1.Gender assessment questions a. Is there a possibility that the Project might reduce or put at risk women’s access to or control of resources, entitlements and benefits? b.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)? c.Is there a possibility that the Project might not take into account gender roles and the abilities of	Yes No	1. a.No, the project does not reduce access to or control of resources for women. b.No, the project does not involve in any form discrimination in any kind of form.The project respects the employees’ freedom of association and their right to collective bargaining and is not complicit in	Not required

²⁰Please See Official Website of Ministry of Foreign Affairs of Turkey: <http://www.mfa.gov.tr/the-european-convention-on-human-rights.en.mfa>

	women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)? d.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)? e.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? f.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? g.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? h.Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards? 2.The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. a.Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. b.Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.		restrictions of these freedoms and rights. c.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. d.No, Ithe project does not discriminate on basis of gender <u>and - takes into account gender roles and the abilities of women or men to benefit from the Project's activities depending on the satisfaction of technical needs.</u> e. No, the project design does not contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities. f.No,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. g.No, the project is not complicit in restrictions of any freedoms and rights; and does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. h.No, the project does not expose women and girls to further risks or hazards. 2. a.The project does not lead or contribute sexual harassment and/or any forms of violence against women. b. There is no such risk for the project. Participation in the project is voluntary.	
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	c.Restriction of women's rights or access to resources (natural or economic). d.Recognise women's ownership rights regardless of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources. 3. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work, specifically. a.Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities. b.Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. c.Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits. 4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.		c. The project does not restrict women's rights or access to resources (natural or economic). d.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. 3.a. The Project provide equal opportunity for women and men to contribute both in volunteer and working positions. b. The project owner takes into account participation by both men and women <u>and -introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.</u> c.3. The access of women or men, as the case may be, to Project participation and benefits is not limited. 4. 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 signed the convention of International Labour Organization. The related articles are 100 and 111. The project owner respects Article 5/8425 of Labour Law; which states no discrimination based on gender, race, religion, sexual orientation or any other basis is allowed.	
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3-Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	Potentially	The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments. Turkey signed the convention of International Labour Organization. The related article is 155. The project owner respects Article 77 of Labour Law No.4857 and will take necessary measures.	For risk associated with construction, health and safety trainings are given to the workers. All personnel are trained on general health and safety trainings, including working at height.
4-Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	<u>4.1 Sites of Cultural and Historical Heritage</u> 1. Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)? <u>4.2 Forced Eviction and Displacement 2-a.</u> Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)? <u>4.3 Land Tenure and Other Rights 2-b</u> <u>Does the Project require any change to land tenure arrangements and/or other rights?</u> For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership? <u>4.4 Indigenous Peoples</u>	No	1.4.1. The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage (EIA report). <u>4.2.2-a.</u> The project does not involve and is not complicit in involuntary resettlement. No residents are required to be re-located. 4.3.2-b. <u>The project does not involve land-use tenure, and there are no uncertainties with regards land tenure, access rights, usage rights or land ownership.</u> The project land have been approved by the local Authorities. <u>All conducted expropriations have been completed. Title deed of easement, land permit and EMRA approval for the expropriations have been provided to the VVB.</u>	Not required

	3.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?		4.4.3.No,indigenous people do not present within the area of influence of the Project.	
5-Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	Yes	The project does not involve and is not complicit in corruption. Turkey is a party to OECD and is party to Anti-Bribery Convention. ²¹ The project owner respects Declaration of property and Anti- Corruption Law No.3628 ²²	Not required
6-Economic Impacts	<u>6.1. Labour Rights</u> 1- The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. 2. Workers shall be able to establish and join labour organisations. 3.Child labour, as defined by the ILO Minimum Age Convention is not allowed. 4.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.	Yes	<u>6.1.</u> <u>As providing safe working conditions and trainings to its employees, the Project Owner contributed and will go on contributing to SDG 8.8.</u> 1.The project does not involve and is not complicit in any form of forced or compulsory labour.Turkey signed the convention of International Labour Organization. ²³ 2.The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.Turkey signed the convention of International Labour Organization. The	Not required

²¹<http://www.oecd.org/turkey/turkey-oecdanti-briberyconvention.htm>

²²<http://www.mevzuat.gov.tr/MevzuatMetin/1.5.3628.pdf>

²³https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO::P11200_COUNTRY_ID:102893

	<u>6.2. Negative Economic Consequences</u> <u>Does the project cause negative economic consequences during and after project implementation, e.g., for vulnerable and marginalised social groups in targeted communities?</u>		related articles are 87 and 98²⁴. The project owner respects Labour Law 4857²⁵ and Trade Union Act No. 2821²⁶. 3. The project does not employ and is not complicit in any form of child labour. Turkey signed the convention of International Labour Organization regarding the prevention of child labour with the articles 182 and 138²⁷. 4. The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments. Health and safety trainings are given to the workers. <u>6.2. The project does not cause any negative economic consequences during and after project implementation. The project provided employment opportunities during both construction and operational phases. Hence the projects, contributed and will go on contributing to SDG 8.5.</u>	
ENVIRONMENTAL & ECOLOGICAL SAFEGUARDING PRINCIPLES AND REQUIREMENTS				
<u>Z.1</u> – Climate and Energy	<u>Z.1.Emissions</u> 1. Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	<u>Z.1</u> . The project reduces greenhouse gas emissions	Not required

²⁴<https://www.ilo.org/ankara/conventions-ratified-by-turkey/lang--en/index.htm>

²⁵<https://www.tbmm.gov.tr/kanunlar/k4857.html>

²⁶<http://www.mevzuat.gov.tr/MevzuatMetin/1.5.2821.pdf>

²⁷<https://www.ilo.org/ankara/conventions-ratified-by-turkey/lang--en/index.htm>

	<u>7.2. Energy Supply</u> 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?	Yes	compared to the baseline scenario. The project generates renewable energy and supplies to the national grid. <u>7.2. The auxiliary consumption of the Project is met from the national grid.</u> <u>The Project contributes to SD 7 and SDG 13 as improving the environmental situation in the region and in the country as avoiding fossil fuel-based electricity will enhance the air quality and help to reduce the adverse effects on the climate. Through renewable technologies and wind-based electricity sustainable and climate friendly development is promoted.</u> <u>By generating 91,570 MWh and reducing 56,755 tCO2 annually, both SGG are supported.</u>	
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[illegible]

	harvesting, commercial development)? <u>9.4 Release of pollutants</u> 4. Could the Project potentially result in the release of pollutants to the environment? <u>9.5 Hazardous and Nonhazardous Waste</u> 5. Will the Project involve the manufacture, trade, release, and/or use of hazardous and non-hazardous chemicals and/or materials? <u>9.6 Pesticides & Fertilisers</u> 6. Will the Project involve the application of pesticides and/or fertilisers? <u>9.7 Harvesting of Forests</u> 7. Will the Project involve the harvesting of forests? <u>9.8 Food</u> 8. Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives? <u>9.9 Animal husbandry</u> 9. Will the Project involve animal husbandry? <u>9.10 High Conservation Value Areas and Critical Habitats</u> 10. Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified? 11.a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?		Waste and the Regulation on Prevention and Control of Industrial Air Pollution to minimize the emissions caused by construction works.²⁸ <u>Regarding the noise, according to the study²⁹ which comprises the operational phase of the project, it's been concluded that the measured values are below the permitted limits</u> <u>In accordance with the Assessment and Management of Environmental Noise in Turkey, Environmental noise criteria for plant or facilities :</u> <u>Clause 22-b: Noise exposure is assessed using a comparison with the measured background noise near the noise sensitive premises, with a maximum exceedance allowed of 5 dbA Leq. As indicated in the report, 3 precise measurement points were selected and measurements were performed at different time periods of the day in these measurement points. According to the measurement results, the maximum measured value is 0.88 dbA Leq and it is below the limit value (5 dbA Leq).</u> <u>Clause 22-c: The pulse noise resulting from the</u>	
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²⁸Project Introduction File, pages 10,11

²⁹ The Noise Assessment Report has been provided to the VVB.

	b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?		<u>activity of the enterprises, facilities, workshops, manufacturing facilities and establishments shall not exceed 100 dBCs in terms of L_{max} noise indicator. According to the measurement results, the maximum measured value is 96.1 dBC L_{max} and it is below the limit value (100 dBC L_{max}). Thus, it's been concluded that the measured values are below the permitted limits.</u> <u>Regarding shadow flickering effect, there isn't any negative impact nor complaint.</u> <u>Domestic wastewater is collected in a impervious septic tanks and transferred by sewage truck to local municipality sewage system as per the "Regulation on Control of Water Contamination". The company has not discharged any wastewater to the surface or ground water.</u> <u>9.5. During operation of the wind farm there are no positive nor negative impacts expected. During excavation and construction no hazardous, toxic or flammable materials will be used.</u> <u>Discarded electronic equipments and used filters which contain hazardous</u>	
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		<u>materials, used fluorescent lamps and oil spills generated in the Project activity have been stored in Central Waste Accumulation Area properly and are transferred after the legally permitted temporary storage period via licensed company. Waste Declaration Forms are the proof the procedures that are applied.</u> <u>9.6. N/A</u> <u>9.7.N/A</u> <u>9.8.</u>The project does not exist within the agricultural land, therefore the Project does not modify the quantity or nutritional quality of food available. <u>9.9. No</u> <u>9.10.</u>The Project does not physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified.Turkey has its own legislations regarding the protected areas and is a party of many International agreements regarding the protected areas like BERN and RAMSAR.The project is in line with the legislations. No endemic flora species exist in the field. 11.<u>There are not endangered species identified as potentially being present within the project land (including</u>	
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			those that may route through the area).	
<u>9.11 Endangered Species</u>	<u>Are there any endangered species² identified as potentially being present within the Project boundary (including those that may route through the area)?</u> <u>Does the Project potentially impact other areas where endangered species may be present through transboundary affects?</u>	<u>No</u>	<u>There are not endangered species identified as potentially being present within the project land (including those that may route through the area).</u>	

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

In order to develop the project as a Gold Standard VER project the Local Stakeholder Consultation Meetings which are in line with Gold Standard Requirements were held on 14-15.07.2009 by in Üvecik Village and Mahmudiye Town separately.

Regarding the renewable crediting period, an online meeting with DOE was made on 02/12/2020. During the 1st Crediting Period, five monitoring periods have been verified and required site visits by the VVB were realized. Local stakeholders were interviewed and consulted during the whole project cycle. The contact information of the plant responsible exists at the Mukhtar, the project owner and local community are always in touch. The project owner regularly checks with the Mukhtar if any complaint or a request exists. Any complaint or need from the local community could directly be received by the project owner and appropriate contributions or improvements are made to the local community. Therefore, no complimentary consultation has been conducted with stakeholders regarding CP renewal.

The grievance mechanism is in place and this was also confirmed by the interviewed local villagers and Mahmudiye Village Mukhtar (Village Head) during the site visit of the last verification. As the contact information of the plant responsible exists at the Mukhtar, any complaint or a request can be directed to Project Owner.

E.2. Summary of comments received

The stakeholders are included according to their relevance to the type of the project. Ministry of Environment and Forestry and its local and subdivisions especially were invited because they are the ones that control the protection of the environment and the General Directorate of Environmental Management holds the UNFCCC focal point role. The Ministry of Energy and Natural Resources was also invited because this is a renewable energy project. In addition to that Ministry of Agriculture and Rural affairs was invited since the project is in a rural area where agriculture is one of the major income source.

The project documentation including passport, PDD, LSCR and the summary of PDD in Turkish were made available via internet for the feedback round. Turkish summary were also be sent to Mukhtar of Üvecik Village and Mayor of Mahmudiye Town and made available to local inhabitants. The national and local governmental institutions as well as NGOs were informed about the feedback round by faxes or emails.

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Generally, the stakeholders were pleasant about the project. Since they have informed regarding the project at the first stakeholder consultation process they have no negative comments on the project.

From the date of the project activity started, there haven't been any negative comments from the stakeholders during the period of construction and operation phases.

E.3. Report on consideration of comments received

Although no negative comments have been received during the stakeholders' process, Enerjisa is aware of the importance of the project for the region and wants to further contribute to the social and sustainable development of the region. As an outcome of the close communication and relation with local community the project owner implemented several measures and provided beneficial contributions to the region.

Appendix 1. Contact information of project participants

Organization name	Enerjisa Enerji Üretim A.Ş
Registration number with relevant authority	
Street/P.O. Box	Barbaros Mh Çığdem Sk
Building	Ağaoğlu My Office İş Merkezi No: 1/15b-15c-16 Ataşehir
City	Istanbul
State/Region	
Postcode	
Country	Turkey
Telephone	+90 2123858866
Fax	
E-mail	dilek.gungor@enerjisauretim.com
Website	www.enerjisauretim.com
Contact person	
Title	
Salutation	Ms.
Last name	Güngör
Middle name	
First name	Dilek
Department	
Mobile	
Direct fax	
Direct tel.	