المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL

Project Submission Form

V3.2 - 2

Contents

COVER PAGE- Project Submission Form (PSF)	
Complete this form in accordance with the instructions attached at the end of this form.	
BASIC INFORMATION	
Title of the Project Activity	**Zincirli Wind Power Plant**
PSF version number	3.0
Date of completion of this form	02/02/2022
Project Owner(s) (Shall be consistent with De-registered CDM Type B Projects)	REA Elektrik Uretim Tic. ve San. Ltd. Sti.
Country where the Project Activity is located	Turkey
GPS coordinates of the project site(s)	Yahyalı District of Kayseri Province, Turkey Latitude: 38° 05' 60.00" N Longitude: 35° 21' 23.39" E
Eligible GCC Project Type as per the Project Standard (Tick applicable project type)	☒ **Type A:** ☐ Type A1 ☒ Type A2 ☐ **Type B – De-registered CDM Projects:**[1] ☐ Type B1 ☐ Type B2

[1] Owners of Type B projects shall fill in the form provided in Appendix 7.

Minimum compliance requirements	☒ Real and Measurable GHG Reductions ☒ National Sustainable Development Criteria (if any) ☒ Apply credible baseline and monitoring methodologies ☒ Additionality ☒ Local Stakeholder Consultation Process ☒ Global Stakeholder Consultation Process ☒ No GHG Double Counting ☒ Contributes to United Nations Sustainable Development Goal 13 (Climate Action)
Choose optional and additional requirements (Tick applicable label categories)	☒ Do-no-net-harm Safeguards to address Environmental Impacts ☒ Do-no-net-harm Safeguards to address Social Impacts ☒ Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)
Applied methodologies (Shall be approved by the GCC or the CDM)	AMS.I-D.: Grid connected renewable electricity generation (V18.0)
GHG Sectoral scope(s) linked to the applied methodology(ies)	GHG-SS # 1.Energy (renewable/non-renewable resources)

Applicable Rules and Requirements for Project Owners

(Tick applicable Rules and Requirements)

Rules and Requirements		Reference	Version
☒ ISO 14064-2			
☒ Applicable host country legal requirements /rules			
☒ GCC Rules and Requirements[2]	☒ Project Standard		3.1
	☐ Approved GCC Methodology (XXXXX)		
	☒ Program Definitions		3.1
	☒ Environment and Social Safeguards Standard		2.0
	☒ Project Sustainability Standard		2.1
	☒ Instructions in Project Submission Form (PSF)-template		3.2
	☐ Add rows if required		
☒ CDM Rules[3]	☒ Approved CDM Methodology	AMS-I.D	18.0
	☐ Tool for the demonstration and assessment of additionality		
	☐ Combined tool to identify the baseline scenario and demonstrate additionality	TOOL 02	
	☒ Tool to calculate the emission factor	CDM TOOL 07: Tool to calculate the emission	7.0

[2] GCC Program rules and requirements: https://www.globalcarboncouncil.com/resource-centre.html
[3] CDM Program rules: https://cdm.unfccc.int/Reference/index.html

		for an electricity system	factor for an electricity system	
		☐ Demonstration of additionality of microscale project activities	TOOL 19	
		☒ Demonstration of additionality of small-scale project activities	CDM TOOL 21: Demonstration of additionality of small scale project activities	13.1
		☐ Additionality of first-of-its-kind project activities	TOOL 23	
		☐ Common practice	TOOL 24	
		☒ Investment analysis	CDM TOOL 27: Investment analysis	11.0
		☐ Positive lists of technologies	TOOL 32	
		☐ Guidelines for objective demonstration and assessment of barriers		
		☐ Add rows if required		
Choose Third Party External Project Verification by approved GCC Verifiers[4]	☒ GHG emission reductions (i.e., Approved Carbon Credits **(ACCs)**) ☒ Environmental No-net-harm Label (**E+**) ☒ Social No-net-harm Label (**S+**) ☒ United Nations Sustainable Development Goals (**SDG+**) ☐ Bronze SDG Label			

[4] **Note:** GCC Verifiers under the Individual Track are not eligible to conduct verifications for GCC Project Activities whose owners intend to supply carbon credits (ACCs) for use within CORSIA.

(Tick applicable verification categories)	☐ Silver SDG Label ☐ Gold SDG Label ☒ Platinum SDG Label ☐ Diamond SDG Label ☒ CORSIA requirements (**C**$^{+}$) ☒ Host Country Attestation on Double counting
Declaration to be made by the Project Owner(s)[5] (Tick all applicable statements)	The Project Owner(s) declares that: ☒ The Project Activity complies with the eligibility of the applicable project type (A1, A2, B1 or B2) as stipulated by the Project Standard. ☒ The Project Activity shall start operations, and start generating emission reductions, on or after 1 January 2016. ☒ The Project Activity is eligible to be registered under the GCC program. ☒ No carbon credits generated by the proposed Project Activity will be claimed as carbon credits in any other GHG program anywhere in the world, either for compliance or voluntary purposes, for the entire 10-year GCC crediting period. ☒ The proposed Project Activity, if Type A, is NOT registered as a GHG Project Activity in any other GHG program or any other voluntary program anywhere in the world. ☒ The proposed Project Activity is NOT included as a component Project Activity (CPA) in a registered GHG Programme of Activities (PoA) under any GHG program (such as the CDM or any other voluntary program) anywhere in the world. ☒ The proposed Project Activity is NOT a CPA that has been excluded from a registered PoA under any GHG program (such as the CDM or any other voluntary program) anywhere in the world. Provide details (if any) below for the boxes ticked above.
	☒ If a GCC project chooses to apply to use ACCs under CORSIA, the Project Owner(s) is required to declare that they are

[5] The "Project Owner" means the legal entity or organization that has overall control and responsibility for the Project Activity.

	aware that they must obtain and provide to the GCC and its Registry (operated by IHS Markit) a written attestation from the host country's national focal point (e.g., Ministry of Environment or Civil Aviation Authority) or focal point's designee, as required by CORSIA Emissions Unit Eligibility Criteria, which: ☒ Confirms the avoidance of double counting as required by CORSIA; ☒ Shall be made publicly available prior to the use of units from the host country under CORSIA; and ☒ Places all responsibility on the Project Owner(s) to replace any and all doubly claimed or counted ACCs by the host country, in the GCC registry operated by IHS Markit. Provide details below for the boxes ticked above
	The Project Owner(s) declares that: ☒ All of the information provided in this document, including any supporting documents submitted to the GCC or its registry operator IHS Markit at any time, is true and correct; ☒ They understand that a failure by them to provide accurate information or data, or concealing facts and information, can be considered as negligence, fraud or willful misconduct. Therefore, they are aware that they are fully responsible for any liability that arises as a result of such actions. Provide details below for the boxes ticked above
Appendixes 1-7	Details about the Project Activity are provided in Appendixes 1 through 7 to this document.
Name, designation, date and signature of the Project Owner(s)	**Mr. Emre Balduk,** **Member of the Board** **REA Elektrik Uretim Tic. ve San. Ltd. Sti.**

	02/02/2022
	

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

A.1. Purpose and general description of the Project Activity

REA Elektrik Uretim Tic. ve San. Ltd. Sti. (REA Elektrik) has built Zincirli Wind Power Plant (Zincirli WPP) located in Yahyalı District, Kayseri Province, with an installed capacity of **12 MW**. There are 5 Nordex N117/2400 turbines, each having a capacity of 2.4 MWs. The turbines were purchased from Germany and shipped to Turkey for installation.

The generation license for the project was issued on 01/12/2011 for 49 years. The project will generate **33,500 MWh** of net electricity annually with regards to the Garrad Hassan Energy assessment conducted on 15/05/2015. The electricity will be collected in the switchyard and transferred via 34,5 kV energy transmission line to the transformer station on Faraşa Bridge, Çamlıca Village located in 10.42 km of the project site.

Plant Load Factor is calculated as 31.8%.
PLF= 33,500 MWh/ (12MW*8760hrs)= 0.318 or 31.8%

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 **18,860 tonnes of CO2eq**.

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

SDG 13 Climate Action: Displacing the electricity generated by fossil fuel fired power plants by utilizing the renewable resources so as to avoid environmental pollution and GHG emissions,

SDG 8 Decent work and Economic Growth: Increasing the income and local standard of living by providing job opportunities for the local people,

SDG 7 Affordable and Clean Energy: Contributing the economic development of the region by providing sustainable energy resources,

SDG 9 Industry Innovation and Infrastructure: Renewable energy projects keep money circulating within the local economy, lowering the dependency on imported fossil fuel for electricity production.

SDG 3 Good Health and Well-being: Generating electricity from renewable energy rather than fossil fuels offers significant public health benefits. The air and water pollution emitted by coal and natural gas plants is linked to breathing problems, neurological damage, heart attacks, and cancer.

The project construction is completed in June 2016 and the plant was commissioned on 24/06/2016.

A.2. Location of the Project Activity

Address and geodetic coordinates of the physical site of the Project Activity		
Physical address	**Latitude**	**Longitude**
Yahyalı District Kahramanmaras Province Turkey	38° 01' 0.05" N	35° 26' 47.30" E

Figure.1. Zincirli WPP

A.3. Technologies/measures

There were no power generation on site before the project implementation. The land was defined partly as forest and agricultural land owned and by villagers.

The project comprises installation of eleven NORDEX N117/2400 kW wind turbine generators with 91 m hub height. As an all-round turbine in the 2.4 MW product line, the N 117/2400 can be deployed at strong-wind sites. It covers wind class IEC IIIA.

The wind turbine series ensures power yield for at least 20 years of operation in accordance with the information provided in the web page[6].

[6] http://www.nordex-online.com/fileadmin/MEDIA/Gamma/Nordex_Gamma_en.pdf

Figure.2. NortexN117/2400

Rotor

The rotor consists of three rotor blades made of high-quality glass fibre-reinforced polyester, a hub, slewing rings and drives for adjusting the rotor blades. A pitch system is used to control and optimise output. The variable-speed rotor enhances the aerodynamic effects and reduces the wind load on the system. If necessary, each rotor blade can be locked in any position by means of an innovative locking system to facilitate servicing.

Drive train

The drive train consists of the rotor shaft, the gearbox, an elastic coupling and the generator.

Gearbox

The nacelle is equipped with a two-stage planetary gearbox with a spur gear stage, as an option a differential gearbox is also available. The gearbox is fitted with a cooling circuit with variable cooling output. The gearbox bearing and tooth engagement are kept continuously lubricated with oil.

Generator

The generator is a double-fed asynchronous machine. Nordex has been using this type of generator with variable-speed turbines successfully for many years. The main advantage is that only 25 – 30% of the energy produced needs to be fed into the electricity grid via a

frequency converter. The deployment of this generator/frequency converter system thus cuts the total cost of the wind power system.

Cooling and filtration

The gearbox, generator and converter of the turbine each have independent active cooling systems. The cooling system for the generator and frequency converter is based on a cooling water circuit, while the gearbox is cooled by an oil-based system. This ensures optimum operating conditions in all types of weather. A separate cooling system room at the rear of the nacelle facilitates access to the cooling units and ensures optimum performance of the individual systems.

Braking system

The three redundant and independently controlled rotor blades can be set at full right angles to the rotation direction for aerodynamic braking. In addition, the hydraulic disc brake provides additional support in the event of an emergency stop.

Nacelle

The nacelle consists of the cast machine frame, a welded generator frame, a steel structure for the crane system and for supporting the nacelle housing and the nacelle housing itself, which is made of glass fibre-reinforced plastic. Ergonomically designed, it is spacious and thus very service-friendly.

Yaw system

The wind direction is continuously monitored by two redundant wind direction sensors on the nacelle. If the permissible deviation is exceeded, the nacelle yaw is actively adjusted by means of up to 4 geared motors.

Tower

The tubular steel tower is designed and certified as a modular tower. The requirements of EN 50308 in particular have been taken into account in the design of the tower interiors

(access ladder, platforms, safety equipment). The transformer can be installed either inside or outside the tower. Nordex offers the N117/2400 on a modular tubular steel tower with a height of 91 metres and on a hybrid tower with a height of 140 metres.

Control and grid connection

The wind turbine has two anemometers. One anemometer is used for controlling the turbine, the second for monitoring the first. All operational data can be monitored and checked on a control screen located in the switch cabinet or via an external laptop. The data and signals are transmitted via ISDN for remote monitoring. At the click of the mouse, the operator can download all key data for the turbine from the Internet. The necessary communications software and hardware is supplied by Nordex.

Lightning protection

Lightning and overvoltage protection of the entire wind turbine is based on the lightning protection concept and is in accordance with DIN EN 62305.

Monitoring Equipment

The net electricity is measured continuously by two power meter at the grid interface. One is the main meter and the other is back-up meter for cross-checking. Both meters are jointly inspected and sealed in order to be protected from interference by any of the parties, meaning the project owner or governmental officers.

A.4. Project Owner(s)

Location / Country	Project Owner(s)	Where applicable[7], indicate if the host country has provided approval (Yes/No)
Turkey	REA Elektrik Uretim Tic. ve San. Ltd. Sti.	No

[7] For example, *Project Coordination Form* is to be filled-in by Project Owners for projects located in Qatar. A written attestation from the host country's national focal point or the focal point's designee, as required by CORSIA (Refer section A.5 of the PSF guidelines).

A.5. Declaration of intended use of Approved Carbon Credits (ACCs) generated by the Project Activity

The Project Activity is expected to generate ACCs for a full 10-year crediting period and supply the credits to offset the following GHG emissions:

Period		Name of the Entities	Purpose and Quantity of ACCs to be supplied
From	To		
24/06/2016	23/06/2026	CORSIA	188,600

Project Owner confirms that the carbon credits (ACCs) from the Project Activity will not be double counted.

A.6. Additional requirements for CORSIA

Please refer to Section E. Environmental and Social Safeguards and Section F. United Nations Sustainable Development Goals (SDG)

Section B. Application of selected methodology(ies)

B.1. Reference to methodology(ies)

The emission reductions of the Project have been calculated in accordance with the approved large scale CDM-methodology AMS.I-D: “Grid-connected renewable electricity generation”, version 18.0[8]

For baseline calculations the AMS.I-D refers to the following tools:

- TOOL 3 “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”, version 3[9]

[8] https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_repan24_AMS-I.D_ver18.pdf?t=cDV8cXpmM3U2fDDsO4Wj55PeiCIITlStdZE9

[9] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v3.pdf/history_view

- TOOL 7 “Tool to calculate the emission factor for an electricity system” version 7.0[10]
- TOOL 10 “Tool to determine the remaining lifetime of equipment” version 1[11]
- TOOL 11 “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 3.0.1[12]
- TOOL 21 “Demonstration of additionality of small scale project activities” version 13.1[13]
- TOOL 27 ”Investment analysis”, version 11.0[14]

“Tool to calculate the emission factor for an electricity system” and “Tool for the demonstration of additionality of small scale project activities” are applicable to the proposed project and both are applied below.

B.2. Applicability of methodology(ies)

CDM-methodology AMS.I-D comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling. The applicability criteria for the project are listed and justified below:

“4. 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

(e) *Involve a replacement of (an) existing plant(s)/unit(s).”*

The proposed project is a greenfield power plant.

[10] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf/history_view
[11] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf/history_view
[12] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf/history_view
[13] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v13.1.pdf/history_view
[14] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf/history_view

"6. 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 does not have a non-renewable component and the total capacity is 12 MW.

As the project is greenfield, following tools are applicable :

- TOOL 7 "Tool to calculate the emission factor for an electricity system" version 7.0[15]

"This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects)."

The project generates grid connected electricity therefore, the tool is applied to calculate the grid emission factor for Turkey's electricity system.

- TOOL 21 "Demonstration of additionality of small scale project activities" version 13.1[16]

It is not mandatory tool with specific applicability criteria. The installed capacity of the project is under 15 MW; therefore, is classified as small scale. The tool is applied to demonstrate the additionality as per the applied methodology. The project choses the investment barrier; which further explained by the guidelines "Non-binding best practice examples to demonstrate additionality for SSC project activities" (V 1.0)[17]

- TOOL 27 "Investment analysis", version 11.0[18]

"*This methodological tool is applicable to project activities that apply the methodological tool "Tool for the demonstration and assessment of additionality", the methodological tool*

[15] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf/history_view
[16] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v13.1.pdf/history_view
[17] https://cdm.unfccc.int/Reference/Guidclarif/index.html
[18] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf/history_view

"Combined tool to identify the baseline scenario and demonstrate additionality", the guidelines "Non-binding best practice examples to demonstrate additionality for SSC project activities", or baseline and monitoring methodologies that use the investment analysis for the demonstration of additionality and/or the identification of the baseline scenario."

The project choses the investment barrier and follows the guidelines "Non-binding best practice examples to demonstrate additionality for SSC project activities" (V 1.0).

B.3. Project boundary, sources and greenhouse gases (GHGs)

The project boundary encompasses the physical, geographical site of the renewable generation source. The wind power plant with all installation is the project boundary. Figure. 3 below summarizes the project boundary: (1) Turbines produces electricity that is fed to (2) Transformer and then (3) Power Substation where power meters are located and the electricity is fed to the national grid.

As the electricity generated by the project displaces the electricity generated by national grid, the baseline boundary is 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.

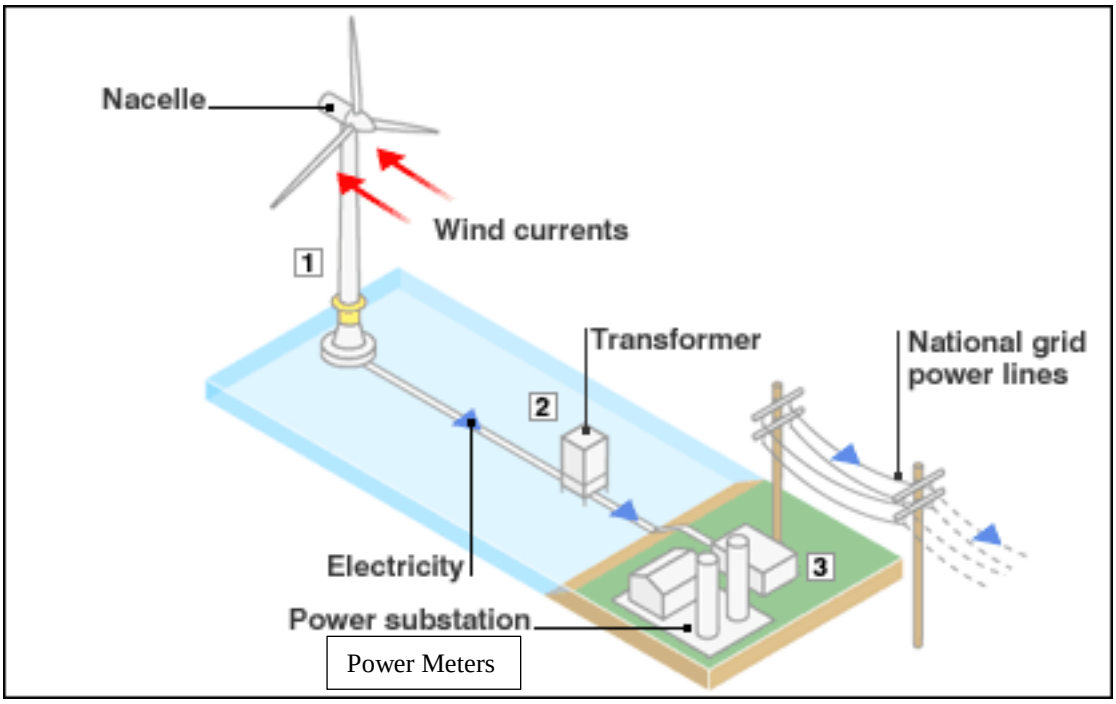

Figure.3. Project boundary

The table below provides an overview of the emissions sources included or excluded from the project boundary for determination of baseline and project emissions.

Source		GHG	Included?	Justification/Explanation
Baseline	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO_2	Yes	Main emission source. The dominant emissions from power plants are in the form of CO_2, therefore CO_2 emissions from fossil fuel fired power plants connected to the grid will be accounted for in baseline calculations.
		CH_4	No	Minor emission resource
		N_2O	No	Minor emission resource
Project Activity	Emissions as a result of Project Activity	CO_2	No	N/A
		CH_4	No	N/A
		N_2O	No	N/A

B.4. Establishment and description of the baseline scenario

According to AMS.I-D (Version 18), if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

> *"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 into the grid".*

As the proposed project is a new grid connected the baseline scenario defined above is applicable.

The electricity generation is mainly done by fossil fuel fired power plants in Turkey. The share of resources in the electricity generation in Turkey in 2019 has been shown in the Figure.3. Total share of all fossil fuel generation was 56%.

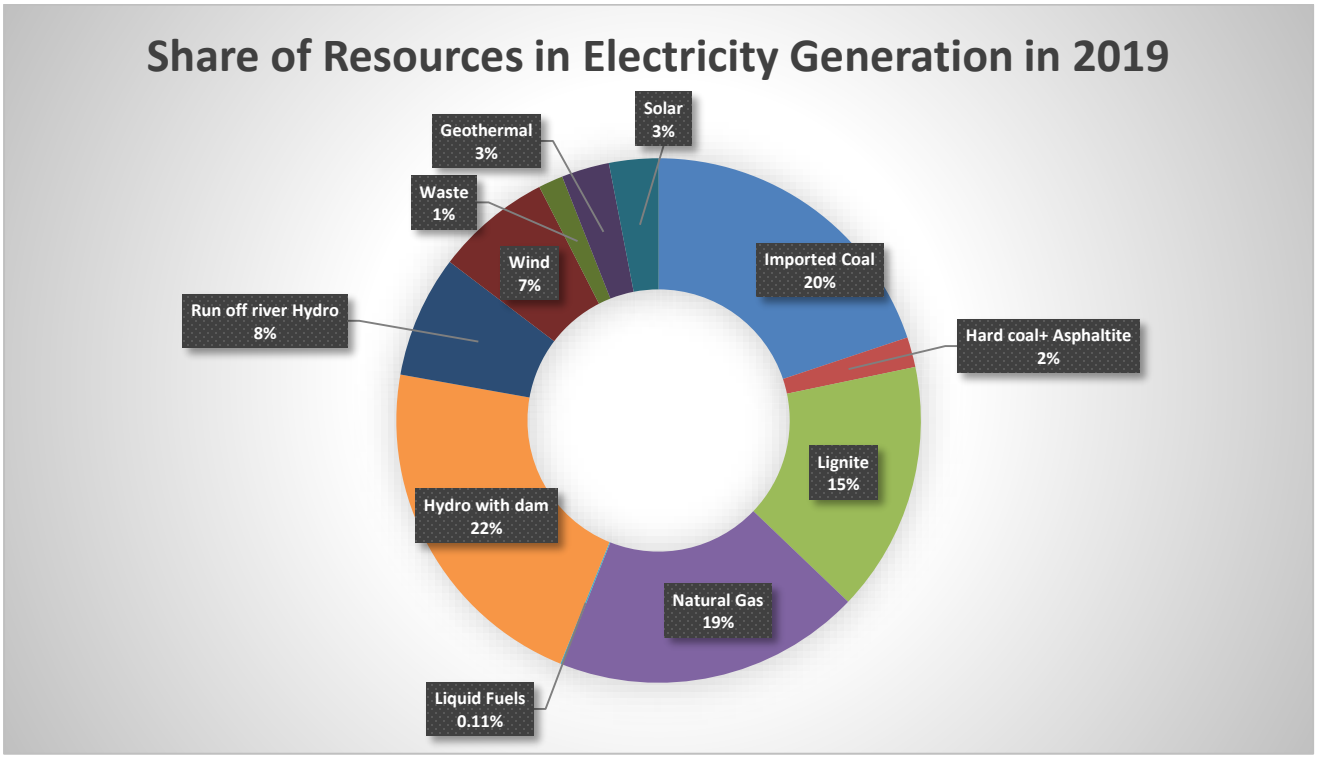

Figure.4. The share of resources for electricity generation in 2019[19].

It is assumed that the energy generation profile of the country will not change and the weight of fossil fired power plants will remain the same during the crediting period. This assumption is based on the analysis presented in the Generation Capacity Projection Report (2019-2023)[20] prepared by Energy market regulatory Authority. Table 23 and Table 26 in the report show the capacity under construction that will be operational between 2019-2023. According to the data, 16,636 MW fossil fuel powered capacity out of 28,680 MW will be operational; that makes 58% of total capacity expected to be added to the grid.

The baseline methodology procedure described in “Tool to calculate the emission factor for an electricity system (version 7.0)” is followed to calculated combined margin in Section B.6 below.

B.5. Demonstration of additionality

[19] GRAPH 38: Share of Resources in Electricity Generation, (https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri)
[20] http://epdk.gov.tr/Detay/Icerik/3-0-66/uretim-kapasite-projeksiyonlari

The additionality of a GCC Project shall be demonstrated by applying the following approach, consisting of two components: (i) A Legal Requirement Test; and (ii) An Additionality Test either based on a Positive List test or a projects-specific additionality test.

(i) Legal Requirement Test

There are no laws or regulation enforcing renewable energy power plants in Turkey. The project is developed in line with all applicable laws and regulations.

Table.2. Relevant laws and regulations project and applicable to the project

Relevant Laws	**Number / Enactment Date**	**Aim and Scope**
Environmental Law[21] *Environmental Impact Assessment Regulation[22]	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[23] *Electricity Licence Regulation[24] *Electricity Market Balancing and Conciliation Regulation[25]	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	Nr. 5346 / 18.05.2005	Aims to extend the utilization of renewable energy for electricity

[21] http://www.mevzuat.adalet.gov.tr/html/631.html

[22] http://www.cedgm.gov.tr/CED/AnaSayfa/yonetmelikler.aspx?sflang=tr

[23] http://www2.epdk.gov.tr/mevzuat/kanun/elektrik/elektrik.html

[24] http://www.epdk.gov.tr/index.php/elektrik-piyasasi/mevzuat?id=74

[25] http://www.epdk.gov.tr/index.php/elektrik-piyasasi/mevzuat?id=36

Resources for the Purpose of Generating Electrical Energy[26]		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[27]	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.

(ii) An Additionality Test either based on a Positive List test or a projects-specific additionality test.

Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

(a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions;

(b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;

(c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;

(d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial

[26] http://www.epdk.gov.tr/index.php/elektrik-piyasasi/mevzuat?id=143

[27] http://mevzuat.dpt.gov.tr/kanun/5627.htm

resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.
Option (a) has been chosen.

The project applies an approved small-scale UNFCCC TOOL 21: "Demonstration of additionality of small-scale project activities, version 13.1". Table.1 below summarizes the important milestones of the project development.

Table.1. Time schedule of the project development

	Activity	Date
1	EIA exemption letter	13/05/2009
2	Generation License	01/12/2011
3	Local Stakeholder Meeting	05/06/2012
4	Commissioning date (Project Start Date)	24/06/2016

Demonstration of additionality

Applying the regular procedure of additionality as per TOOL 1: Tool for the demonstration and assessment of additionality version 7.0[28], following outcomes are achieved.

Step 2 - Investment analysis

The investment analysis below aims to show that "the proposed 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

[28] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf/history_view

- 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-Apply benchmark analysis

For the purpose of benchmark analysis Equity IRR before tax has been chosen as the indicator. The benchmark has been chosen from threshold IRR defined for wind power projects under Table.3.3 Prototype Sub Projects for CTF financing in Implementation Completion and Results for Clean Technology Fund by World Bank[29] in June 2017; that is %15 pre-tax.

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

The "Guidance for the assessment of investment analysis"[30] 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. "

REA Elektrik has financed a large portion of the project cost through foreign currency (EUR) loans in 2015 with a payback period ending in 2027. The following table summarizes the financial figures for the project operation.

[29] https://documents1.worldbank.org/curated/en/799701498842988254/pdf/ICR00004069-06192017.pdf

[30] https://cdm.unfccc.int/filestorage/e/x/t/extfile-20150817153802500-Reg_guid03.pdf/Reg_guid03.pdf?t=TU98cXpsY2JofDBB89eI3Y7fx2e8fzp0hZbA

Table .3. Summary of financial data

Parameter used for financial analysis	Unit	value	Source
Expected Electricity Generation	MWh	33,500	As per "Guidelines for reporting and validation of plant load factors"[31], the plant load factor is calculated by a third.
PLF	%	31.9	Calculated
Total Investment	EUR	13,706,156	Loan Agreement Turbine Purchase Agreement
Operational Cost	EUR/year	448,032	Calculated
Electricity price	USDcent/kWh	7.3	Guaranteed long term price by Renewable Energy Law
Economic life of turbines	years	20	As per depreciation guidelines by Turkish Revenue Administration (Item 45.1.7)[32]
Exchange rate	EUR/USD	1.11	Average 2015

The Internal Rate of Return (IRR) before taxation for the project is calculated as **6.32 %** without the ACC revenue. That is much lower than the benchmark of **15%**.

As a result, the revenue acquired from the operation of the power plant is not financially attractive to do the investment.

Sub-step 2d - Sensitivity Analysis

[31] http://cdm.unfccc.int/EB/048/eb48_repan11.pdf

[32] https://www.gib.gov.tr/sites/default/files/fileadmin/user_upload/Yararli_Bilgiler/amortisman_oranlari.pdf

The sensitivity analysis is applied to variables that constitute of the total investment cost in order to show that investment decision is not the most attractive alternative financially. Investment cost, operational cost, electricity generation and price are taken into account in the sensitivity analysis and the change in electricity revenue is discussed below.

As per the TOOL27: Investment Analysis, only variables including initial investment cost, that constitute more than 20% either total project costs or total project revenues should be subjected to variation. The operational cost is 2.5% of the total cost but 20.1 % of the total revenues, therefore; included in the sensitivity analysis.

For a range of ±10% fluctuations in parameters above, Table.4. below have been obtained.

Table.4. Sensitivity analysis for the Project IRR

IRR w/o carbon	**-10%**	**-5%**	**5%**	**10%**
Investment Cost	*7.31*	*6.80*	*5.87*	*5.45*
Electricity Price	*3.41*	*4.90*	*7.69*	*9.03*
Electricity Generation	*3.41*	*4.90*	*7.69*	*9.03*
Operational Cost	*6.51*	*6.69*	*6.13*	*5.94*

The project IRR becomes 7.31 % with a 10% decrease in investment costs and 9.03% with an increase in electricity generation or electricity unit price.

The investment cost is mostly dependent on turbine and electromechanically equipment costs (85% of the total cost). It is unlikely to expect 10% or more decrease as the turbine price is fixed by the purchase agreement.

The electricity tariff guaranteed by the law is 7.3 USDcents/kWh and is not expected increase in the long term.

Operational cost includes maintenance cost and will not change much during the operational lifetime of the project. The value could be higher as the turbines became worn out as years pass by.

The average electricity generation for 20 years has been estimated as 33,500 MWhs (P50) as per Garrad Hassan Energy Assessment. The annual generation could be higher at high wind speeds at initial years of operation but the average would stay the same as the turbines worn out through its

operational life. The IRR becomes 9.03% with 10% rise in the electricity generation but will still be under the benchmark of 15%.

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

According to the baseline methodology AMS.I-D (version 18.0), the emission reduction ER_y by the project activity during a given year y is defined as;

$$ER_y = BE_y\text{-}PE_y$$

Where:

ER_y: Emission reductions achieved by the project activity in year y (tCO_2e).

BE_y: Baseline Emission in year y (tCO_2e).

PE_y: Project Emission in year y (tCO_2e).

Baseline Emission

The baseline emissions are the product of electrical energy baseline *EGBL*, *y* expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

where :

$EF_{Grid,CM,y}$: 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)

$EG_{PJ,Y}$: 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)

The emission factors are calculated as described in the “Tool to calculate the emission factor for an electricity system” (version 7.0) as following seven steps:

Step 1. Identify the relevant electric power system

The project is connected to the national grid, so the project electricity system is the national grid which includes the project site and all power plants physically connected to the grid. Each power plant can be dispatched without significant transmission constraints from the central grid (Figure.7).

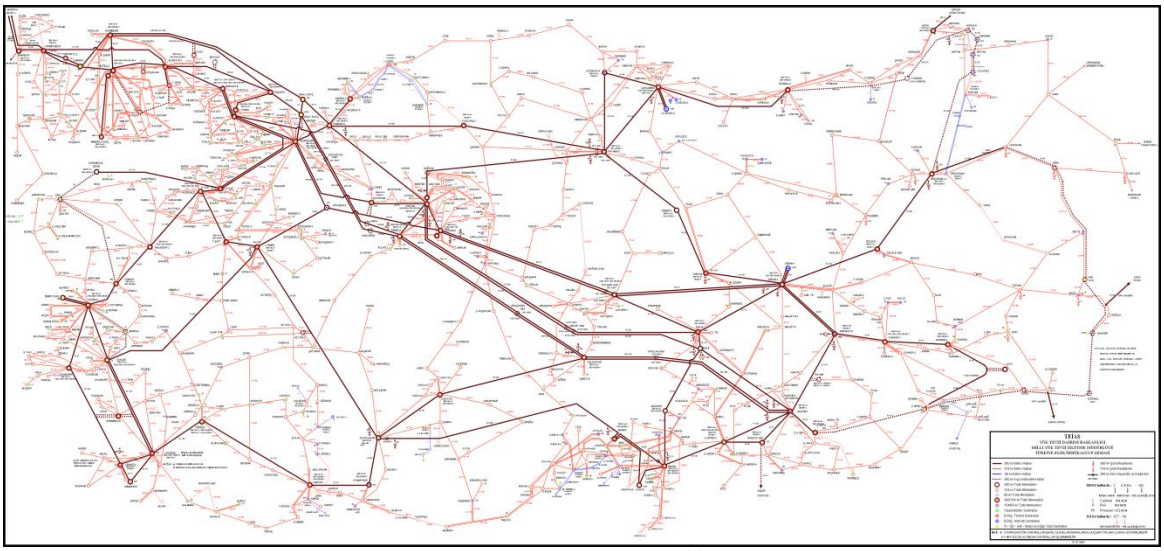

Figure.5. Interconnected national grid of Turkey[33]

There is no electricity import from another power grid within the same host country and electricity exports are not subtracted from electricity generation data used for calculating and monitoring the electricity emission factors.

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

[33] http://www.geni.org/globalenergy/library/national_energy_grid/turkey/turkishnationalelectricitygrid.shtml

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

Option I is chosen.

Step 3. Select an operating margin (OM) method

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following
methods:
(a) Simple OM, or
(b) Simple adjusted OM, or
(c) Dispatch Data Analysis OM, or
(d) Average OM

The data specific to the power plants connected to the grid, such as the dispatch order for each power plant in the system and the amount of power dispatched from all plants in the system during each hour, are not available. Therefore, Simple OM has been selected as the methodology.

The Simple OM method (a) can only be used if low-cost/must run resources constitute less than 50% of total grid generation in:
1) average of the five most recent years, or
2) based on long-term averages for hydroelectricity production.

Average of five most recent years is calculated by the formula given under Approach 1:

$$\text{Share}_{LCMR} = \text{average}\left[\frac{EG_{LCMR_{y-4}}}{total_{y-4}}, \ldots, \frac{EG_{LCMR_y}}{total_y}\right]$$

There is no nuclear plant in Turkey and hydro, wind and geothermal facilities are only renewable sources utilized for electricity. There is no indication that the coal fired power plants are accepted as the low cost /must run. Table.7. below shows the share of hydro and renewable resources in electricity generation for the five most recent years (2015-2019) and it is below 50% of the total grid generation.

Table.7. Share of primary sources in electricity generation, 2015 – 2019[34]

Year	THERMAL		HYDRO+ GEOTHERMAL+ WIND		TOTAL
	GWh	%	GWh	%	GWh
2015	179,366.44	69%	82,416.86	31%	261,783.30
2016	185,798.12	68%	88,609.63	32%	274,407.75
2017	212,138.46	71%	85,139.06	29%	297,277.52
2018	209,683.48	69%	95,118.42	31%	304,801.90
2019	175,142.50	58%	128,755.06	42%	303,897.56

The Simple OM can be calculated using either of the two following data vintages for year(s) y:

- Ex ante option: If the ex ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation.

- Ex post option: The year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring. If the data required calculating the emission factor for year y is usually only available later than

[34] TABLE.66 Electrical Statistics 2019 (https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri)

six months after the end of year y,alternatively the emission factor of the previous year (y-1) may be used. If the data is usually only available 18 months after the end of year y, the emission factor of the year proceeding the previous year (y-2) may be used. The same data vintage (y, y-1 or y-2) should be used throughout all crediting periods.

Based on the most recent data available, ex- ante option is chosen.

Step 4. Calculate the operating margin emission factor according to the selected method

There are two options calculating the Simple OM emission factor ($EF_{grid,OMsimple,y}$):
Option A: Based on the net electricity generation and a CO_2 emission factor of each power unit; or
Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

Option B can only be used if:
(a) The necessary data for Option A is not available; and
(b) Only nuclear and renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known; and
(c) Off-grid power plants are not included in the calculation.

As the data on each power plant/unit is not publicly available and renewable power generation are considered as low-cost/must-run power sources, Option B is selected. Off-grid power plants are not included in the calculations.

The simple OM emission factor is calculated based on the net electricity supplied to the grid by all power plants serving the system, not including low-cost / must-run power plants /

units, and based on the fuel type(s) and total fuel consumption of the project electricity system, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} * NCV_{i,y} * EF_{CO2,i,y}}{EG_y}$$

Where:

$EF_{grid,OMsimple,y}$: Simple operating margin CO_2 emission factor in year y (tCO_2/MWh)

$FC_{i,y}$: Amount of fossil fuel type i consumed in the project electricity system in year y(mass or volume unit)

$NCV_{i,y}$: Net calorific value(energy content) of fossil fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,y}$: CO_2 emission factor of fossil fuel type i in year y(tCO_2/GJ)

EG_y : Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units, in year y(MWh)

i : All fossil fuel types combusted in power sources in the project electricity system in year y

y : The three most recent years for which data is available at the time of submission of the CDM-PDD to the DOE for validation (ex-ante option).

OM is calculated as 0.702 tCO_2/MWh. Please see section B.6.3. Ex ante calculation of emission reductions for details below.

Step 5: Identify the group of power units to be included in the build margin

1) Identification of the available data

The sample group of power units *m* used to calculate the build margin consists of either:

a) The set of five power units that have been built most recently, or

b) The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

a) The set of five power units that have been built most recently could be accessible in Ministry of Energy and Natural Resources web site[35]:

License Owner	Plant Name	Place	Type	Capacity (MW)	Commissioning Date
BİLENERJİ BİLKENT ENERJİ ÜRETİM SAN. VE TİC. A.Ş.	BİLKENT KOJENERASYON	ANKARA	Natural Gas	4.29	27/12/2019
OĞUL ENERJİ A.Ş.	OĞUL ENERJİ BİYOKÜTLE TESİSİ	İSTANBUL	Biomass	7.40	27/12/2019
GÖKTEPE RES ELEKTRİK ÜRETİM A.Ş.	YAHŞELLİ RES	İZMİR	Wind	6.64	27/12/2019
RA GÜNEŞ ENERJİSİ ÜRETİM SAN. VE TİC. A.Ş.	RA GÜNEŞ MARDİN GES	MARDİN	Solar	3.63	27/12/2019
MED-MAR SAĞLIK HİZ. GIDA İNŞ. TUR. İŞL. NAK. VE EL. ÜR. SAN. VE TİC. A.Ş.	KİRAZLI RES	İZMİR	Wind	3.80	31/12/2019

As it could be seen from the list, the most recent power plants started operation have very low capacity and there is no information about their annual electricity production.

[35] 2019 Yılı Enerji Yatırımları; https://enerji.gov.tr/eigm-raporlari

b) The set of power capacity addition could be predicted from list of investments including the installed capacities in MWs in Ministry of Energy and Natural Resources web page[36]. The project generation of the recently added power plants are available in Capacity Projection Reports prepared by TEİAŞ the latest for the period between 2019-2023[37]. The reports include the list of power plants for connected to the grid for 2018 with assumed annual generations and no information could be accessible for the generation of power plants added in 2019. Furthermore, taking the assumed annual generation of the power addition would cause false calculation as they do not operate at full year performance; which is not case. The total electricity generation figure would be much higher than the actual total electricity produced for that particular year. In order to use the most recent data and to match the period chosen for OM calculations above (2017-2019); a deviation from the methodology has been applied.

The deficiency in the data has been eliminated by a methodology deviation has been proposed for China and accepted by the Executive Board[38]. As Executive Board accepted the following deviations:

1. Use of capacity additions during last 1~3 years for estimating the build margin emission factor for grid electricity;
2. Use of weights estimated using installed capacity in place of annual electricity generation.

The capacity addition between 2017-2019 amounts to 12,769.6MW and below the threshold of %20 of the recent capacity of 91,267 in 2017. Therefore, no carbon projects have been excluded from the calculation. The deviation guidelines requires the average of 3 years without exclusion of carbon projects as well.

The Board suggest the following when applying the deviation:

"Use of efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin (BM)"

[36] 2019 Yılı Enerji Yatırımları; http://www.etkb.gov.tr/tr-TR/EIGM-Raporlari

[37] http://www.teias.gov.tr/YayinRapor/APK/projeksiyon/index.htm

[38] http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ

2) Determining the efficiency level of the best technology commercially available

As per the suggestion of the Board to use of efficiency level of the best technology commercially available, proportional weights that correlate to the distribution of installed capacity in place during the selected period above should be applied.

The efficiency data for power plants are not available for best practice technologies utilized in Turkey. Therefore, the default values from the tool have been applied.

3) Determining the vintage

In terms of vintage, there two options defined:

Option 1: For the first crediting period, calculate the build margin emission factor *ex ante* based on the most recent information available on units already built for sample group *m* at the time of PSF submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

Option 2: For the first crediting period, the build margin emission factor shall be updated annually, *ex post*, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated *ex ante*, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Option 1 is selected for the data vintage.

STEP 6. Calculate the build margin emission factor.

The build margin emission factor is the generation-weigthed average emission factor (tCO_2/MWh) of all power units m during the most recent year y for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} x EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (12)$$

Where:

$EF_{grid,BM,y}$:	Build margin CO2 emission factor in year y (tCO2/MWh)
$EG_{m,y}$:	Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{EL,m,y}$:	CO_2 emission factor of power unit m in year y (tCO_2/MWh)
m:	Power units included in the build margin
y:	Most recent historical year for which power generation data is available

The BM calculation adopts the modifications methods agreed by the CDM EB. The weighted average of the installed capacity of each fossil fuel type; rather than power plant based data, should be used instead of EG values. Therefore the equation is regenerated as :

$$EF_{grid,BM,y} = \frac{\sum_m CAP_{m,y} x EF_{EL,m,y}}{\sum_m CAP_{m,y}}$$

$CAP_{m,y}$: Incrementally installed capacity of power unit m in year y.

The generation capacities for coal-fired, oil-fired and gas- fired technology are available for the calculation. However; there are multi-fuel fired capacity additions utilizing solid+liquid fuel or liquid+natural gas fuel mixtures. Therefore; first the fuel consumption data are used to calculate the proportion of CO_2 emissions from each fossil fuel type. Second, the emission factors for the best commercially available technology of power generation for each fossil fuel are calculated. Third, the emission factor for thermal power is calculated as a weighted average of all emission factors

calculated in the Step 1. Finally, this thermal emission factor is multiplied by the proportion of thermal power added capacity.

Sub-step 6(a) Calculate the percentages of CO2 emissions from each type of fossil fuel-fired power plants in total CO2 emissions from all thermal power plants.

According to the methodology; the ratio of tCO_2 produced by each fossil fuel type for power generation is calculated with the following formulas:

$$\lambda_{Coal} = \frac{\sum_{i \in COAL, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Lignite} = \frac{\sum_{i \in Lignite, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{FuelOil} = \frac{\sum_{i \in FuelOil, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{DieselOil} = \frac{\sum_{i \in DieselOil, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{LPG} = \frac{\sum_{i \in LPG, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Naphta} = \frac{\sum_{i \in Naphta, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

$$\lambda_{Gas} = \frac{\sum_{i \in GAS, j, y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}{\sum_{i,j,y} F_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,j,y}}$$

λ_i : Ratio of CO_2 produced by fossil fuel i to the total emissions.

$F_{i,j,y}$: Amount of fuel i consumed by power sources j in year y [kt or m^3]

$NCV_{i,y}$: Net calorific value for fossil fuel i in year y [TJ/kt]

$EF_{i,j}$: CO_2 emission factor of fuel type i used in power unit j in (tCO_2/TJ)

j : Power units included in the build margin

y : Most recent historical year for which power generation data is available

Sub-step 6(b) Calculating fossil fuel fired emission factor ($EF_{Thermal}$)

Thermal emission factor is calculated with the formula:

$$EF_{Thermal} = \sum_i \lambda_i * EF_{i,Adv}$$

$EF_{Thermal}$: Weighted emissions factor of thermal power generation with the efficiency level of the best commercially available technology in Turkey (tCO_2/MWh).

λ_i : Ratio of CO_2 produced by fossil fuel i to the total emissions.

$EF_{i,Adv}$: Emission factors with efficiency levels of the best commercially available technology in Turkey (tCO_2/MWh).

$EF_{i,Adv}$ is calculated with the formula in accordance with Option A2 for calculating EF in the tool:

$$EF_{i,Adv} = \frac{EF_{CO2,m,i,y} * 3.6}{\eta_{m,y}} \quad (3)$$

$EF_{CO2,m,i,y}$: Average CO2 emission factor of fuel type *i* used in power unit *m* in year *y* (tCO2/GJ)

$\eta_{m,y}$: Average net energy conversion efficiency of power unit *m* in year *y* (ratio)

m : All power units serving the grid in year *y* except low-cost/must-run power units

y : The relevant year as per the data vintage chosen

Sub-step 6(c) Calculating Build Margin Emission Factor

$$EF_{grid,BM,y} = \frac{CAP_{Thermal}}{CAP_{Total}} * EF_{Thermal}$$

$EF_{grid,BM,y}$: Build Margin CO_2 emission factor in year y (tCO_2/MWh).

$CAP_{Thermal}$: Total thermal power capacity addition of the selected period [MW]

CAP_{Total} : Total power capacity addition of the selected period [MW]

$EF_{Thermal}$: Emission factors with efficiency levels of the best commercially available technology in Turkey (tCO_2/MWh).

BM is calculated as 0.146 tCO_2/MWh. Please see section B.6.3. Ex ante calculation of emission reductions for details below.

Step7. Calculate the combined margin emission factor

The combined margin emissions factor $EF_{grid,CM,y}$ is calculated as follows:

$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM} \quad (13)$$

$EF_{grid,BM,y}$: Build margin CO2 emission factor in year y (tCO2/MWh)

$EF_{grid,OM,y}$: Operating margin CO2 emission factor in year y (tCO2/MWh)

w_{OM} :Weighting of operating margin emissions factor (%)

w_{BM} :Weighting of build margin emissions factor (%)

The combined margin emissions factor $EF_{grid,CM,y}$ should be calculated as the weighted average of the Operating Margin emission factor ($EF_{grid,OMsimple,y}$) and the Build Margin emission factor ($EF_{grid,BM,y}$), where w_{OM} = 0.75 and w_{BM} = 0.25 for wind power plant project for the first crediting period and for subsequent crediting periods.

CM is calculated as 0.563 tCO_2/MWh. Please see section B.6.3. Ex ante calculation of emission reductions for details below.

Project emissions:

As per the methodology, for all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. Therefore, project emissions are accounted to be as zero.

Leakage:

No leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.

B.6.2. Data and parameters fixed ex ante

Data / Parameter Table 1.

Data / Parameter:	$EG_{gross,y}$
Methodology reference	AMS.I-D (v18.0)
Data unit	MWh
Description	Gross electricity generated by all power plants connected to the national grid including low-cost must run power plants between years 2017-2019
Measured/calculated /default	Measured
Data source	TABLE66: Turkey's Gross Electricity Generation by Primary Energy Resources And The Electric Utilities (2006-2019) TEIAS (Turkish Electricity Transmission Company) annual data[39]

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

Value(s) of monitored parameter	Please see ER Calculation Sheet
Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of CM
Additional comments	Official data

Data / Parameter Table 2.

Data / Parameter:	$EG_{net,y}$
Methodology reference	AMS.I-D (v18.0)
Data unit	MWh
Description	Net electricity generated by all power plants connected to the national grid excluding low-cost must run power plants between years 2017-2019
Measured/calculated /default	Measured
Data source	TABLE56: Annual Development of Electricity Generation- Consumption and Losses in Turkey (1993-2019) TEIAS (Turkish Electricity Transmission Company) annual data

Value(s) of monitored parameter	Please see ER Calculation Sheet
Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of CM
Additional comments	Official data

Data / Parameter Table 3.

Data / Parameter:	$EG_{imported,y}$
Methodology reference	AMS.I-D (v18.0)
Data unit	MWh
Description	Electricity imported to the national grid between years 2017-2019.
Measured/calculated /default	Measured
Data source	TABLE56: Annual Development of Electricity Generation- Consumption and Losses in Turkey (1993-2019) TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) of monitored parameter	Please see ER Calculation Sheet

Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of CM
Additional comments	Official data

Data / Parameter Table 4.

Data / Parameter:	$FC_{i,y}$
Methodology reference	AMS.I-D (v18.0)
Data unit	Tonnes/m3
Description	Fossil fuel consumed by thermal power plants between years 2017-2019
Measured/calculated /default	Measured
Data source	TABLE73: Annual Development of Fuels Consumed in Thermal Power Plants in Turkey by the Electric Utilities (2005-2019) TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) of monitored parameter	Please see ER Calculation Sheet

Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of CM
Additional comments	Official data

Data / Parameter Table 5.

Data / Parameter:	NCV
Methodology reference	AMS.I-D (v18.0)
Data unit	TJ/mass or volume
Description	Net calorific value of each fossil fuel type between years 2017-2019
Measured/calculated /default	Calculated
Data source	TABLE73: Annual Development of Fuels Consumed in Thermal Power Plants in Turkey by the Electric Utilities (2005-2019) TABLE75: Heating Values of Fuels Consumed in Thermal Power Plants in Turkey by the Electric Utilities (2006-2019) TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) of monitored parameter	Please see ER Calculation Sheet

Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	Annual heating values of each fuel type is divided by annual fuel consumption.
QA/QC procedures	
Purpose of data	Calculation of CM
Additional comments	Official data

Data / Parameter Table 6.

Data / Parameter:	EF_{CO2}
Methodology reference	AMS.I-D (v18.0)
Data unit	tCO_2/TJ
Description	CO_2 emission factor of fossil fuel type i
Measured/calculated /default	Default
Data source	IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) of monitored parameter	Please see ER Calculation Sheet

Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of CM
Additional comments	Official data

Data / Parameter Table 7.

Data / Parameter:	$\eta_{m,y}$
Methodology reference	AMS.I-D (v18.0)
Data unit	-
Description	Average net energy conversion efficiency of thermal power units connected to the grid
Measured/calculated /default	Default
Data source	Default values in Table 2, Appendix of TOOL09:"Determining the baseline efficiency of thermal or electric energy generation systems" (V3.0)[40]

[40] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-09-v3.0.pdf/history_view

Value(s) of monitored parameter	Please see ER Calculation Sheet
Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of BM
Additional comments	Official data

Data / Parameter Table 8.

Data / Parameter:	$CAP_{y,total}$
Methodology reference	AMS.I-D (v18.0)
Data unit	MW
Description	Capacity addition to the national grid between years 2017-2019
Measured/calculated /default	Measured
Data source	TABLE 9: Annual Development of Turkey's Installed Capacity by Primary Energy Resources TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) of monitored parameter	Please see ER Calculation Sheet

Measurement/ Monitoring equipment (if applicable)	
Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	Calculation of BM
Additional comments	Official data

Data / Parameter Table 9.

Data / Parameter:	$EF_{grid,CM,y}$
Methodology reference	AMS.I-D (v18.0)
Data unit	tCO2e/MWh
Description	Combined margin grid emission factor
Measured/calculated /default	Calculated
Data source	TEIAS (Turkish Electricity Transmission Company) annual data
Value(s) of monitored parameter	0.563
Measurement/ Monitoring equipment (if applicable)	

Measuring/reading/ recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	$EF_{grid, CM,y} = EF_{grid, OM, y} * 0.75 + EF_{grid,BM, y} * 0.25$
QA/QC procedures	
Purpose of data	Calculation of ACCs
Additional comments	Official data

B.6.3. Ex-ante calculation of emission reductions

Calculation of Operating Margin

The following data are available on the Turkish Electricity Transmission Company (TEİAŞ) web site[41]:

- Annual fuel consumption by fuel type (tons or m^3),
- Annual heating values for fuels consumed for electricity generation (Tcal)
- Annual electricity generation by fuel type, import and export (GWh)

Annual heating values for each fuel type are directly related with the fuel consumption and are used to calculate Net Calorific Values (TJ/kt) for each year (Table.8). The annual heating values are converted to TJ and divided by the fossil fuel consumption for that year.

Table.8. Net Calorific Values for each fuel type for Turkey.

Fuel Type	**NCV (TJ/kt)**		
	2017	**2018**	**2019**
Hard Coal + Imported Coal	23.60	23.52	23.28
Lignite	6.97	6.77	6.89
Fuel Oil	44.93	46.42	47.65

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

Diesel Oil	44.63	43.12	43.15
LPG	-	-	-
Naphtha	-	-	-
Natural Gas	36.82	36.29	36.70

The coefficients required for calculation of CO_2 emission factor (tCO_2/TJ) have been obtained through IPCC 2006 guidelines for GHG inventories[42]. Using the available data and the formula given in section B6.1, overall CO_2 production by electricity generation is calculated as given in Table.9. below.

Table.9. Calculation of total emission by electricity generation

	COEF (tCO_2/TJ) (Lower)	**Fuel Consumption (2017-2019)** (tons or $1000m^3$)	**Total Emission (2017 - 2019) (tCO_2)**
Hard Coal+ Imported Coal	94.600	71,248,673.09	158,116,271.58
Lignite	90.933	214,054,923.00	133,742,107.48
Fuel Oil	67.833	725,105.56	2,522,309.46
Diesel Oil	72.600	221,367.00	714,662.85
LPG	61.6	0	-
Naphtha	69.300	0	-
Natural Gas	54.267	55,263,009.59	109,836,710.79
Total Emissions			**404,932,062.17**

Net electricity generated and supplied to the grid by thermal plants has been calculated using data obtained from the TEİAŞ web page. The ratio between gross and net generation has been calculated first, and assuming that the same ratio is valid for thermal plants; gross generation by thermal power plants has been multiplied by this ratio in order to find net generation by thermal plants. Summing up this with the imported electricity, total supply excluding low cost / must run sources are determined as given in Table.10. below.

[42] Table 2.2.Default Emission Factors for Stationary Combustion in the Energy Industries, Vol.2. Energy, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)

Table.10. Net Electricity Generation from thermal power plants (units in GWh)

Year	Gross generation	Net generation	Net/ Gross (1)	Gross Gen. Thermal (2)	Net Gen Thermal (1x2)	Import	Total Supply to the grid
2017	297,277.52	284,257.52	0.956	212,138.46	202,847.33	2,728.27	205,575.60
2018	304,801.88	290,502.16	0.953	209,683.48	199,846.22	2,476.89	202,323.10
2019	303,897.56	289,135.76	0.951	175,142.50	166,634.97	2,211.51	168,846.48
Total					**569,328.52**	**7,416.66**	**576,745.18**

Finally, using the data tabulated in the previous two tables, the OM emission factor considering years 2017 -2019 has been calculated as generation weighted average from equation for OM above;

$$\mathbf{EF_{grid,\ OMsimple,\ y} = 0.702\ tCO_2/\ MWh}$$

The Operating Margin emission factor calculated above will be constant throughout the 7 years crediting period.

Calculation of Build Margin

Sub-step 6(a) Calculate the percentages of CO2 emissions from each type of fossil fuel-fired power plants in total CO2 emissions from all thermal power plants.

The annual fuel consumption data for each fuel type for 2017-2019 are gathered from TEIAS web page. Net calorific value (in TJ/kt) are calculated as described above for the same period. The lower values for CO_2 emission coefficient (tCO_2/TJ) from IPCC 2006 guidelines for GHG inventories have been used.

The following ratios have been obtained:

Table.11. (N) Ratio of CO_2 by each fossil fuel type to the total emissions

Fuel Type	**λi**	**Fuel Type**	**λi**
Coal	0.3905	Lpg	-
Lignite	0.3303	Naphta	-
Fuel Oil	0.0062	Natural Gas	0.2712
Diesel Oil	0.0018		

Sub-step 6(b) Calculate the operating margin emission factor of fuel-based generation.

The data for the best available technology for thermal power plants are not available for Turkey. Therefore, the default efficiency factors given in Annex.1 of the tool are used for the calculation.

Table.12. Efficiency factors

Fossil fuel type	**Efficiency (%)**
Coal	50
Lignite	50
Fuel-oil	48
Diesel-oil	48
LPG	48
Naphtha	48
Natural gas	62

$EF_{Thermal}$ is calculated as 0.572 tCO_2/MWh

Sub-step 6(c) Calculating Build Margin Emission Factor

The Build Margin has been calculated as **0.146 tCO_2/MWh**.

Calculation of the Combined Margin

$EF_{grid, CM, y}$ = 0.75 * 0.702 + 0.25 * 0.146= 0.563

The combined margin emission factor is therefore **0.563 tCO_2/MWh,** which will be used as the baseline factor in calculation of emission reduction by project activity.

Project Emissions

PE= 0

Emission reduction (ERy*)* by the project activity

For the first crediting period of seven years, annual emission reduction will be;

$$ER_y = BE_y - (PE_y + LE_y)$$

BE_y=(33,500 MWh * 0.563 tCO_2e/ MWh) = **18,860tCO_2**

PE_y= **0 tCO_2**

LE_y= **0 tCO_2**

The total emission reduction will be 188,600 tCO_2 for the 10 years crediting period.

B.6.4. Summary of ex ante estimates of emission reductions

>>

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
24/06/2016-31/12/2016	9,430	0	0	9,430
2017	18,860	0	0	18,860
2018	18,860	0	0	18,860

2019	18,860	0	0	18,860
2020	18,860	0	0	18,860
2021	18,860	0	0	18,860
2022	18,860	0	0	18,860
2023	18,860	0	0	18,860
2024	18,860	0	0	18,860
2025	18,860	0	0	18,860
01/01/2026 - 23/06/2026	9,430	0	0	9,430
Total	188,600	0	0	188,600
Total number of crediting years	10 years			
Annual average over the crediting period	18,860	0	0	18,860

B.7. Monitoring plan

>>

B.7.1. Data and parameters to be monitored

Data / Parameter Table 1.

Data / Parameter:	$EG_{PJ,y}$ Air- CO2 emissions Natural Resources- Replacing fossil fuels with renewable sources of energy
Methodology reference	AMS-I.D (v18.0)

<table>
<tr><td>Data unit</td><td>MWh/yr</td></tr>
<tr><td>Description</td><td>Quantity of (renewable) electricity generated and supplied by the project power plant to the grid in year y.</td></tr>
<tr><td>Measured/calculated /default</td><td>Measured</td></tr>
<tr><td>Data source</td><td>Direct measurement on Project activity site by two electricity meters: Meter Reading are done remotely by governmental officers and the invoice is issued by the agreement of both parties.</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>The annual electricity fed to the grid is estimated as 33,500 MWh.</td></tr>
<tr><td>Measurement/ Monitoring equipment</td><td>
<table>
<tr><td colspan="2"></td></tr>
<tr><td>Type of meter</td><td>Main/Back up Power Meters</td></tr>
<tr><td>Location of meter</td><td>Switchgear Building</td></tr>
<tr><td>Accuracy of meter</td><td>0.5S</td></tr>
<tr><td>Serial number of meter</td><td>5271047/5271048</td></tr>
<tr><td>Calibration frequency</td><td>Once in 10 years</td></tr>
<tr><td>Date of Calibration/ validity</td><td>03.05.2016/03.05.2026</td></tr>
<tr><td>Reference No. of Calibration Certificate</td><td>ES-2019-06-35</td></tr>
<tr><td>Calibration Status</td><td>Calibrated</td></tr>
</table>
</td></tr>
<tr><td>Measuring/reading/ recording frequency</td><td>Continuous measurement and at least monthly recording</td></tr>
<tr><td>Calculation method (if applicable)</td><td>The net electricity supplied to the grid will be calculated as a difference of electricity exported to the grid and the electricity imported from the</td></tr>
</table>

	grid as per the equation: $EG_{PJ,y} = EG_{Export} - EG_{Import}$ The electricity exported and imported is measured continuously by main power meter and back up power meter at the grid interface and recorded monthly.
QA/QC procedures	• A back up meter is used for crosschecking the accuracy and both meters are calibrated if required. • Data measured by meters and will be crosschecked with the data uploaded to PMUM.
Purpose of data	• Calculation of emission reductions • To demonstrate the positive score for CO2 emissions • To demonstrate the positive score for replacing fossil fuels with renewable sources of energy.
Additional comments	

Data / Parameter Table 2.

Data / Parameter:	Natural resources- Measures for bird and bat life
Methodology reference	N/A
Data unit	N/A
Description	Turbines are placed apart from each other End of blades will be painted with red of orange color Red flash lights are placed on top of each turbine
Measured/calculated /default	_
Data source	Observations, Ornithological Assessment Report
Value(s) of monitored parameter	Turbines' layout plan End of blades are painted Red flash lights are placed on each turbine

Measurement/ Monitoring equipment	N/A
Measuring/reading/ recording frequency	Recorded during the first site visit
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	To demonstrate the positive score for protecting/ enhancing species diversity
Additional comments	

Data / Parameter Table 3.

Data / Parameter:	Natural Resources- Forest management
Methodology reference	N/A
Data unit	N/A
Description	Compensation paid to the forest management
Measured/calculated /default	_
Data source	Payment records, Assessment Report for Ecosystem
Value(s) of monitored parameter	-

Measurement/ Monitoring equipment	N/A
Measuring/reading/ recording frequency	Checked during the first site visit
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	To demonstrate the positive score for protecting/ enhancing forests
Additional comments	The payment is used to planting trees by the Forestry Management Services for compensation.

Data / Parameter Table 4.

Data / Parameter:	Air- Noise
Methodology reference	N/A
Data unit	N/A
Description	Noise disturbance at the nearest village
Measured/calculated /default	_
Data source	Observations, Assessment Report for Ecosystem
Value(s) of monitored parameter	-

Measurement/ Monitoring equipment	N/A
Measuring/reading/ recording frequency	Checked during the first site visit.
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	To demonstrate the positive score for noise pollution
Additional comments	

Data / Parameter Table 5.

Data / Parameter:	Social- Jobs
Methodology reference	N/A
Data unit	• Long-term Jobs • Short-term Jobs • Income generated
Description	Jobs created and income generated will be monitored.
Measured/calculated /default	_
Data source	Social Security Records of employees

Value(s) of monitored parameter	• 5 permanent jobs created • 10 temporary jobs during construction • The employees received monthly wages not less than the legal minimum amount.
Measurement/ Monitoring equipment	N/A
Measuring/reading/ recording frequency	Checked during the first site visit.
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	To demonstrate the positive scores for long-term jobs, short term jobs and source of income generation increased.
Additional comments	

Data / Parameter Table 6.

Data / Parameter:	Social- Health and Safety
Methodology reference	N/A
Data unit	Number of trainings
Description	Health and Safety trainings will be given to the employees
Measured/calculated /default	_

Data source	Attandance sheet signed by the employees
Value(s) of monitored parameter	N/A
Measurement/ Monitoring equipment	N/A
Measuring/reading/ recording frequency	Checked during the first site visit.
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	To demonstrate the positive scores for health and safety
Additional comments	

Data / Parameter Table 7.

Data / Parameter:	Social- Education
Methodology reference	N/A
Data unit	Certificates
Description	Job-related certificates will be provided to the employees working at height and high voltage areas
Measured/calculated /default	_

Data source	Certificates
Value(s) of monitored parameter	N/A
Measurement/ Monitoring equipment	N/A
Measuring/reading/ recording frequency	Checked during the first site visit.
Calculation method (if applicable)	
QA/QC procedures	
Purpose of data	To demonstrate the positive scores for education
Additional comments	

B.7.2. Monitoring-program of risk management actions

No parameters identified for risk management

Data / Parameter:	**XX**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for XXXXXXX (PRMA XX)**
Purpose:	*To mitigate/reduce an environmental/social impact identified as Harmful in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of **xxx**.*

<table>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td></td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>Describe the Program of Risk Management Actions, focusing on additional actions (e.g., installation of pollution control equipment) planned to reduce the risk of impacts that have been identified as Harmful.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td></td><td colspan="3"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td></td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td></td></tr>
</table>

B.7.3. Sampling plan

>>N/A

B.7.4. Other elements of the 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.

Hourly readings will be done and noted to a log book by the personnel. The readings will be then uploaded to the website of “Market Financial Settlement Center” or PMUM which serves as an official unit to balance real time electricity demand with production. Each electricity producer has to report their daily generation forecasts and realized generation to the database run by PMUM.

In addition, monthly power meter readings are done as a basis for monitoring net electricity fed into the grid. Governmental officers from TEIAS (Turkish Electricity Transmission Company) will read remotely and record the amount of electricity at the end of each month by Automated Meter Reading System (OSOS). The records include day, peak and night hour electricity generation of the plant and checked and approved by both parties.

The gross production by every single wind turbine generation will be monitored and the data will be stored through a SCADA system. Through this SCADA system, also other technical specifications of the turbines can be monitored such as temperature, voltage, current, frequency, vibration etc.

The objective of the monitoring plan is to ensure the complete, consistent, clear, and accurate monitoring and calculation of the emissions reductions during the whole crediting period. The Project Owner is responsible for the implementation of the monitoring plan.

Monitoring parameters

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. Since the power meters are located at the connection to the grid, the meter readings will be used to monitor electricity fed to the grid.

Data Management and Quality Control

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, meaning the project owner or governmental officers.

The capacity of the transmission line to be connected is 34.5 kV, the accuracy class for main power meter has been defined in the Communiqué for Power Meters[43] as 0.5S class for 10-100MVA. The back-up meter will have the same accuracy class as well. The calibration will be implemented in accordance with the related standard procedures (IEC-EN 60687) by either TEIAS or the provider company in the name of TEIAS at the first installation. Then, the meters shall be periodically checked in every 10 years as per Measure and Measurement Equipment Inspection Regulation[44]

The power meters have the communication hardware which enables PMUM to reach the data stored and report the errors in reading. If there is need for calibration, governmental officers will be doing it.

[43] http://www.enkoenerji.com.tr/mevzuat/teblig/elektrik-piyasasinda-kullanilacak-sayaclar-hakkinda-teblig.html

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

When the main meter has a breakdown, the readings of the back-up meter will be used. If both meters failed, conservative data substitution procedures based on the internal SCADA data will be used.

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.

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

The project start date is the date of start of operations of the project. As per the GCC rules, the start date of operations of the GCC project activity is the earliest date when emission reductions are generated by the project (Footnote 10, Project Standard 3.1) Therefore, start date of the project activity is the commissioning date of power plant, 24/06/2016

C.2. Expected operational lifetime of the Project Activity

49 years as per the generation license

C.3. Crediting period of the Project Activity

Fixed

C.3.1. Fixed crediting period

10 years

C.3.2. Start date of the crediting period

24/06/2016

C.3.3. Duration of the crediting period

24/06/2016- 23/06/2026

Section D. Environmental impacts

D.1. Analysis of environmental impacts

There are no significant adverse impacts expected as per the Project Information File prepared and approved by Ministry of Environment and Urbanism.

The project site is not located on any of high conservative areas in the region and not on the route on migrating birds. A separate ornithology report has been prepared and the experts confirmed that the project has no significant harm. There are no endangered flora or fauna species identified as well.

The nearest house is 1,580 meters away from the turbines. Yahyalı district center is 9.6 kms away. Therefore, the noise level will be far below the legal limits and have no impact on daily life of people.

D.2. Environmental impact assessment

An Environmental Impact Assessment (EIA) is not mandatory for wind power plants according to national legislation in Turkey. A pre-EIA study was done and Project Information File (PIF) was submitted to Ministry of Environment and Forest and " EIA is not necessary" decision was taken by Kahramanmaraş Provincial Directorate of Environment and Urbanism on 13/05/2009. The study includes definition of the project activities and defines the possible environmental impacts and mitigation measures to be implemented. As a part of the file submitted, the project owner commits to obey all applicable environmental law and regulations related to solid waste management, hazardous waste management, water pollution management, conservation of forests and biodiversity.

Section E. Environmental and social safeguards

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E.1. Environmental safeguards

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Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**	
		Description of Impact *(both positive and negative)*	**Legal requirement / Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**
Environmental impacts on the identified categories [45] ***indicated below.***	*Indicators for environmental impacts*	*Describe anticipated environmental impacts, both positive and negative from all sources (stationary and mobile), that may result from the Project*	*Describe the applicable national regulatory requirements /legal limits related to the identified risks of environmental impacts.*	*If no environmental impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicate*	*If environmental impacts are anticipated, but are expected to be in compliance with applicable national regulatory require*	*If environmental impacts are anticipated that will not be in compliance with the applicable national regulatory requirements*	*Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., installation of pollution control equipmen*	*Re-evaluate risks after Risk Mitigation Action Plans have been developed (refer to previous two columns) for impacts that*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action*	*Confirm that the Project Activity risks of negative environmental impacts are expected to be managed to levels that are unlikely to cause any*

[45] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

		Activity, within and outside the project boundary, over which the Project Owner(s) has control, and beyond what would reasonably be expected to occur in the absence of the Project Activity.		*d as **Not Applicable** (No actions required)*	*ments/ below the legal limits, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Harmless** (No actions required)*	*or are likely to exceed legal limits, then the Project Activity is likely to cause harm (may be un-safe) and shall be indicated as **Harmful** (Actions required).*	*the risk of impacts that have been identified as **Harmful**.*	*t) that will be adopted to reduce the risk of impacts that have been identified as **Harmful**.*	*have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as **Harmless** (No actions required)*	*and described in the PSF (refer to Table 3).*	*Plan targets for managing risks to levels that are unlikely to cause any harm.*	*harm (Mark +1 for **Yes** or and -1 for **No**)*
Environmental Safeguards												
Environment - *Air*	*SO_x emissions*	N/A	20 $\mu g/m^3$	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	NO_x emissions	N/A	40 $\mu g/m^3$	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	CO_2 emissions	The project aims to reduce CO2	N/A	N/A			N/A	N/A	N/A	The electricity generation will	The power plant displaces the	+1

		emissions by replacing fossil fuels in electricity generation.								Please see Data and parameters to be monitored, Data/parameter Table.1	grid electricity generated mainly by fossil fuel powered plants.	
	CO emissions	N/A	10 $\mu g/m^3$	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Suspended particulate matter (SPM) emissions	N/A	40 $\mu g/m^3$	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Fly ash emissions	N/A	0.2-1.0 mg/m^3	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Non-Methane Volatile Organic Compounds (NMVOCs)	N/A	70 $\mu g/m^3$	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Odor emissions	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	Noise Pollution	The nearest house to the project site is 1,580 m and the noise level occurred during the operation of wind turbines is below 16 dBA	L_{day} 65 dbA $L_{evening}$ 60 dbA L_{night} 55 dbA (Regulation for Assessment and Management of Ambient Noise)[46]	N/A			N/A	N/A	N/A	Noise disturbance at the nearest village will be checked Please see Data and parameters to be monitored, Data/parameter Table.4	The turbines are far away from residential centers. No noise disturbance is expected.	+1
	Others	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Add more rows if required	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
Environment - *Land*	*Solid waste Pollution from Plastics*	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Solid waste Pollution from	N/A	N/A				N/A	N/A	N/A	N/A	N/A	N/A

	Hazardous wastes											
	Solid waste Pollution from Bio-medical wastes	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Solid waste Pollution from E-wastes	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Solid waste Pollution from Batteries	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Solid waste Pollution from end of life products/ equipment	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury)	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	Soil erosion	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Others											
	Add more rows if required											
Environment - *Water*	*Reliability / accessibility of water supply*	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Water Consumption from ground and other sources	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Generation of wastewater	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Wastewater discharge without/with insufficient treatment	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Pollution of	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	Surface, Ground and/or Bodies of water											
	Others											
	Add more rows if required											
Environment – *Natural Resources*	*Conserving mineral resources*	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Protecting/ enhancing plant life	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Protecting/ enhancing species diversity	The project is not expected to do harm to the bird and bat life as per the environmental assessment done.	N/A	N/A	Harmless		The turbines are placed apart form each other to eliminate the risk of collision. Red flash lights have	N/A	N/A	Implementation of mitigation measures will be checked Please see Data and parameters to be monitor	The project is designed to do harm to bird and bat life.	+1

							been placed on top of each turbine. End of blades are painted .			ed, Data/parameter Table.2		
	Protecting/ enhancing forests	The project site is located forest land. Compensation payment will be done to Directorate of Forest Management to plant trees and enhance forest land	N/A	N/A			N/A	N/A	N/A	Compensation paid to the forest management will be checked Please see Data and parameters to be monitored, Data/parameter Table.3	The new trees will be planted and forest land will be enhance .	+1
	Protecting/ enhancing other depletable natural resources	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	Conserving energy	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Replacing fossil fuels with renewable sources of energy	The project voluntarily replaces the same amount of electricity generate by fossil fuel powered plants.	N/A	N/A			N/A	N/A	N/A	The electricity generation will be monitored. Please see Data and parameters to be monitored, Data/parameter Table.1	The project generates power from renewable resources.	+1
	Replacing ODS with non-ODS refrigerants	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Others											
	Add more rows if required											

Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to Environment. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.

Net Score:	**+5**
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to the environment.

E.2. Social Safeguards

>>

Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**	
		Description of Impact (*both positive and negative*)	**Legal requirement /Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**
Social impacts on the identified categories[47] indicat	*Indicators for social impacts*	*Describe the impacts on society and stakeholders, both positive*	*Describe the applicable national regulatory requirements*	*If no social impacts are anticipated, then the Project Activity*	*If social impacts are anticipated, but are expected to be in complia*	*If social impacts are anticipated that will not be in compli*	*Describe the operational controls and best practices, focusin*	*Describe the Program of Risk Management Actions (refer to*	*Re-evaluate risks after Risk Mitigation Actions plans have*	*Describe the monitoring approach and the parameters to be*	*Describe how the Project Owner has concluded that the*	*Confirm that the Project Activity risks of*

[47] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

ed below.		*and negative, that may result from constructing and operating of the Project Activity.*	*/ legal limits related to the identified risks of social impacts.*	*is unlikely to cause any harm (is safe) and shall be indicated as **Not Applicable** (No actions required)*	*nce with applicable national regulatory requirements/ legal limits, then it the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Harmless** (No actions required)*	*ance with the applicable national regulatory requirements/ legal limits, then the Project Activity is likely to cause harm (may be unsafe) and shall be indicated as **Harmful** (Actions*	*g on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as **Harmful**.*	*Table 3), focusing on additional actions (e.g., construction of **crèche** for workers) that will be adopted to reduce the risk of impacts that have been identified as **Harmful**.*	*been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as **Harmless** (No actions required)*	*monitored for each impact that has been identified as Harmful and to be described in the PSF (refer to Table 3).*	*Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*negative social impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for **Yes** or and -1 for **No**)*

						required).						
Social Safeguards												
Social - *Jobs*	*Long-term jobs (> 1 year) created / lost*	*The project creates 10 temporary jobs for construction and 5 permanent jobs for operation*	Turkey has ratified all international labor conventions[48]. All employees are registered to social security system.	N/A			N/A	N/A	N/A	Permanent jobs will be monitored by Social Security records. Please see Data and parameters to be monitored, Data/parameter Table.5	5 permanent jobs created for the operation of the plant.	+1

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

	New short-term jobs (< 1 year) created / lost	*The project creates 10 temporary jobs for construction.*	Turkey has ratified all international labor conventions[49]. All employees are registered to social security system.	N/A			N/A	N/A	N/A	Temporary jobs will be monitored by Social Security records. Please see Data and parameters to be monitored, Data/parameter Table.5	10 temporary jobs during construction.	+1
	Sources of income generation increased / reduced	The project creates 5 *permanent jobs for operation and contributes to*	N/A	N/A			N/A	N/A	N/A	Payments to the social security will be monitored. Please see Data and parameters to be	The employees received monthly wages not less than the legal minimum amount.	+1

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

		the economy of the country by providing access to clean and affordable energy								monitored, Data/parameter Table.5		
Social - *Health & Safety*	*Disease prevention*	*N/A*	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Reducing / increasing accidents	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Reducing / increasing crime	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Reducing / increasi	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	ng food wastage											
	Reducing / increasing indoor air pollution	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Efficiency of health services	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Sanitation and waste management	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Other health and safety issues	Health and safety trainings shall be given to all employee.	Occupational Health and Safety Regulation[50]	N/A			N/A	N/A	N/A	Number of health and safety training will be monitored in each year.	Health and Safety trainings will be given to the employees	+1

[50] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=16924&MevzuatTur=7&MevzuatTertip=5

										Please see Data and parameters to be monitored, Data/parameter Table.6		
	Add more rows if required											
Social - *Education*	*Job related training imparted or not*	The employee working in high voltage areas and climbing turbines will take necessary trainings and certificates.	Occupational Health and Safety Regulation[48]	N/A			N/A	N/A	N/A	Certificates of the relevant employee will be provided to the verifiers. Please see Data and parameters to be monitored, Data/parameter Table.7	Job-related certificates will be monitored.	+1

	Educational services improved or not	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Project-related knowledge dissemination effective or not	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Other educational issues	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Add more rows if required											
Social - *Welfare*	*Improving/ deteriorating working conditions*	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	Community and rural welfare	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Poverty alleviation (more people above poverty level)	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Improving / deteriorating wealth distribution/ generation of income and assets	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Increased or / deteriorating municipal	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A

	revenues											
	Women's empowerment	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Reduced / increased traffic congestion	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Other social welfare issues	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A
	Add more rows if required											

Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to society. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.	
Net Score:	+5
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to society.

Section F. United Nations Sustainable Development Goals (SDG)

>>

UN-level SDGs	UN-level Target	Declared Country-level SDG	Defining Project-level SDGs					Project Owner(s)'s Conclusion	
			Project-level SDGs	Project-level Targets/ Actions	Project-level Indicators	Contribution of Project-level Actions to SDG Targets	Monitoring	Explanation of Conclusion	Are Goal/ Targets Likely to be Achieved?
Describe UN SDG targets and indicators *See: https://unstats.un.org/sdgs/indicators/indicators-list/*	*Describe the UN-level target(s) and corresponding indicator no(s)*	*Has the host country declared the SDG to be a national priority? Indicate Yes or No*	*Define project-level SDGs by suitably modifying and customizing UN/ Country-level SDGs to the project scope.* ***For guidance see:*** *Integrating the SDGs into Corporate Reporting- A Practical Guide: https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf*	*Define project-level targets/actions, by suitably modifying and customizing UN/Country-level targets to the project scope. Define the target date by which the Project*	*Define project-level indicators by suitably modifying and customizing UN/Country-level indicators to the project scope or creating*	*Describe and justify how actions taken under the Project Activity are likely to result in a direct positive effect that contributes to achieving the defined*	*Describe the monitoring approach and the monitoring parameters to be applied for each project-level SDG target and*	*Describe how the Project Owner has concluded that the project is likely to achieve the identified Project level SDGs*	*Describe whether the project-level SDG target(s) is likely to be achieved by the target date (Yes or No)*

			Case-study from Coca-Cola and other organizations to develop organization-wide SDGs (page 114): https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs	*Activity is expected to achieve the project-level SDG target(s). Refer to the previous column for guidance*	*a new indicator (s). Refer to the previous column for guidance*	*project-level SDG targets and is additional to what would have occurred in the absence of the Project Activity*	*Indicator*	*target(s).*	
Goal 1: End poverty in all its forms everywhere									
Goal 2: End hunger, achieve food security and improved nutrition and									

promote sustainable agriculture									
Goal 3. Ensure healthy lives and promote well-being for all at all ages	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination 3.9.1 Mortality rate attributed to household and ambient air pollution	No	Reduced air pollution due to coal power plants.	Reduced amount of coal utilized for electricity generation	Share of coal in electricity generation.	The project replaces grid electricity that is highly generated by fossil fuel fired plants by renewable and clean electricity	Amount of electricity generate by the project, monitored by power meters	The amount of air pollutants from the public heat and electricity sectors continuously increased since 1990[51]	Yes

[51] Turkey's IRR https://www.ceip.at/status-of-reporting-and-review-results/2021-submission/#T

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all									
Goal 5. Achieve gender equality and empower all women and girls									
Goal 6. Ensure availability and sustainable management of water									

and sanitation for all									
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix 7.2.1 Renewable energy share in the total final energy consumption	No	Increased share of renewable energy in electricity generation	The project's generation contributes to the share of renewable energy.	Increased share of renewable energy in electricity generation	The project generates renewable energy.	Amount of electricity generate by the project, monitored by power meters	The project will promote affordable, reliable, sustainable energy	Yes
Goal 8. Promote sustained, inclusive and sustainable economic	8.2 Achieve higher levels of economic productivity through diversification, technological	No	Increased number of jobs available in high value sectors.	The project will provide job opportunities and special trainings for electricians and	Increased number of jobs in the region	The project will employ 10 persons during construction and 5	Number of jobs created by social security records.	The project contributes to sustainable development by providing	Yes

growth, full and productive employment and decent work for all	upgrading and innovation, including through a focus on high-value added and labour-intensive sectors 8.2.1 Annual growth rate of real GDP per employed person			engineers for wind power operation.		during operation		employment and decent work	
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency	No	Reduced CO2 emissions per unit of electricity generation	The project will contribute the reduction of CO2 related with electricity generation	Reduced CO2 emissions	The project will reduce 18,860 tCO2 annually	Calculated by the electricity generation and grid emission factor	The project will upgrade energy industries with clean technologies	Yes

innovation	and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities 9.4.1 CO2 emission per unit of value added								
Goal 10. Reduce inequality within and among countries									

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable									
Goal 12. Ensure sustainable consumption and production patterns									
Goal 13. Take urgent action to combat climate change and its impacts	13.3 Improve education, awareness-raising and human and institutional capacity on climate	No	Reduced CO2 emissions	The project will contribute the reduction of CO2 related with	Reduced CO2 emissions	The project will reduce 18,860 tCO2 annually	Calculated by the electricity generation and grid	The project will contribute to the institutional capacity for	

	change mitigation, adaptation, impact reduction and early warning 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			electricity generation			emission factor	climate change mitigation.	
Goal 14. Conserv									

e and sustainably use the oceans, seas and marine resources for sustainable development									
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and									

reverse land degradation and halt biodiversity loss									
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels									
Goal 17. Strength									

en the means of impleme ntation and revitalize the global partners hip for sustaina ble develop ment									

SUMMARY	Targeted	Likely to be Achieved
Total Number of SDGs	**5**	**5**
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF	**Platinum**	**Platinum**

Section G. Local stakeholder consultation

G.1. Modalities for local stakeholder consultation

A local stakeholder meeting was organized on June, 5th 2012 before the project implementation began. Local people, local officers and NGOs were invited to the meeting. Invitation mails were sent to the relevant invitees. In addition, in order to invite local people, invitation posters were left at Kuzoluk Village Common Utility Centre.

A presentation about the project was given to stakeholders; which focused on the non-technical specifications of the project, its environmental affects, climate change issue and the climate change benefits of the project. The presentation was followed by a Q&A session and conducting questionnaires with the attendants face to face.

To get an understanding about an overall perspective of stakeholder opinion on the project, a questionnaire which consists of two parts was prepared. The first part of the questionnaire applies for stakeholders' comments on Sustainable Development Indicators and the second part asks stakeholders what they like or not like about the project. Also, it is asked to the stakeholders in the second part of questionnaire that what they think in general about the project and what they suggests to the project owner.

G.2. Summary of comments received

The stakeholders think that the project does not have an impacts on water and soil conditions. Most of them believe that it will have positive impacts on the air quality. They also believe that it will not cause any impacts on biological diversity; thus marked the choice "positive". Some of them are not sure if there will be any noise pollution. There were no negative comments that call for a design change from the stakeholders. The project has received support from local community.

Following questions were asked:
Q1: Will you support our village by construction facilities such as drinking fountain, school repair etc.?
A1: Yes, company will have denotation to commonwealth of village.

Q2: Will you hire people from village for the project?
A2: Yes, since village is close to project site, employment from village is also beneficial for company both in construction and operation period.

Q3: Where will you find subcontractor of project for excavation, road construction and etc?

A3: If quality of subcontractor satisfies requirements of project, we will choose it from village. Otherwise we will find it from another place.

Q4: Can our farm animal graze around project site if we need?

A4: Yes, they can. It would not be problem.

Q5: What is the direct relationship climate change and global warming with us? What is solid effect of all these changes to us?

A5: Global warming and climate change are global problems however they have unpredictable effects all around the world. Climate change results with seasonal changes thus unpredictable rains or hot periods occur. These changes affect crop growing and fertility of agriculture. Also high record hot and cold days occur and repeat. As a result, rural area people whose lives directly depend on soil strictly affected from these changes.

Q6: Do we affect noise of turbines?

A6: Since wind turbines are far away from village, there will not be any affect noise to village.

Figure.6. Pictures from the meeting.

G.3. Consideration of comments received

An input/ grievance expression book was placed in Kuzuoluk Common Place Center and checked by the headman of Kuzoluk Village. His phone number has also been shared with the stakeholders for futher comments.

Section H. Approval and authorization

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Appendix 1. Contact information of project owners

Organization name	REA Elektrik Üretim Ticaret ve Sanayi Limited Şirketi
Country	Turkey
Address	Gayberli Mah. 28043 Sok. Akedaş Elektrik Perakende Satış A.Ş. Sitesi A Blok Apartmanı No:45/A Onikisubat -Kahramanmaraş
Telephone	+90 344 231 0408
Fax	-
E-mail	-
Website	-
Contact person	Mr Emre Balduk

Appendix 2. Affirmation regarding public funding

>>

Appendix 3. Applicability of methodology(ies)

>>

Appendix 4. Further background information on ex ante calculation of emission reductions

>>

Appendix 5. Further background information on monitoring plan

>>

Appendix 6. Summary report of comments received from local stakeholders

>>

Appendix 7. Summary of de-registered CDM project (Type B)

>>

Complete this form in accordance with the instructions attached at the end of this form.	
CDM Project registration number	
Date of registration of CDM Project	
Title of the Project Activity	
CDM Project de-registration reference number	
Date of de-registration of the CDM Project	
Project Participants (authorized by the host / annex 1 country letter of approval)	
Country where the project is located	

<table>
<tr><td></td><td></td></tr>
<tr><td>Applied CDM methodology(ies)
(provide reference and version number(s))</td><td></td></tr>
<tr><td>Pre-registration changes to the CDM Project Activity
(Tick as applicable)</td><td>
<table>
<tr><th>CDM Pre-registration Changes</th><th>Reference number</th><th>Approved</th><th>Provide a summary of pre-registration changes</th></tr>
<tr><td>Deviations from the CDM methodology</td><td></td><td>☐</td><td></td></tr>
<tr><td>Deviations from the CDM Tool</td><td></td><td>☐</td><td></td></tr>
<tr><td>Deviations from the CDM rules</td><td></td><td>☐</td><td></td></tr>
<tr><td>Other…….</td><td></td><td>☐</td><td></td></tr>
</table>
</td></tr>
</table>

Post-registration changes to the CDM Project Activity (Tick as applicable)	**CDM Post registration Changes**	**Reference number**	**Approved**	**Provide a summary of post-registration changes**
	Change in project design		☐	
	Request for revision of monitoring plan		☐	
	Request for change in start date of crediting period		☐	
	Renewal of crediting period		☐	
	Temporary deviations		☐	
	Other…….		☐	

Crediting Period(s)

Crediting period(s)			Period (start & end dates)	ERs as per registered PDD/MR	CERs issued
Crediting Period (shall start on or after 1 Jan 2016)	Fixed 10 year				
	Renewable (7 years, with 2 approved renewals)	1st			
		2nd			
		3rd			
Period for which CERs have been issued					
Period for which CERs have been requested but not issued					-
Period for which CERs have never been requested for issuance (no monitoring reports submitted)					-
Period for which CERs have never been requested for issuance prior to CDM de-registration					-
Remaining Crediting period, after CDM de-registration, for which CERs have not been issued by the UNFCCC CDM Executive Board, subject to a ceiling of 10 years as allowed under the GCC Program					-

<table>
<tr><td>Details of Previous CDM Issuance Requests</td><td>
<table>
<tr><th>Issuance Request</th><th>Period (start & end dates)</th><th>ERs as per registered PDD</th><th>Quantity of CERs requested to be issued</th><th>Quantity of CERs issued</th></tr>
<tr><td>1st</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2nd</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3rd</td><td></td><td></td><td></td><td></td></tr>
<tr><td>4th</td><td></td><td></td><td></td><td></td></tr>
<tr><td>5th</td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Total</td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>List any open issues in the Validation and last Verification Report (e.g., FARs, if any) and how they have been addressed</td><td></td></tr>
<tr><td>Any other relevant information that has not been reported in the registered CDM documents and that may have adverse impacts on the environmental integrity of the Project Activity</td><td></td></tr>
<tr><td>Provide the list of all the registered documents related to this project, as available on the UNFCCC/CDM</td><td></td></tr>
</table>

website and the corresponding URLs.	

DOCUMENT HISTORY

Version	Date	Comment
V 3.2	31/12/2020	▪ The name of GCC Program's emission units has been changed from "Approved Carbon Reductions" or ACRs to "Approved Carbon Credits" or ACCs.
V 3.1	17/08/2020	▪ Editorial revisions made ○ Revised Table in section B.7.2 on Monitoring-program of risk management actions ○ Revised Table in section E.1 on Environmental Safeguards ○ Revised Table in section E.1 on Social Safeguards ○ Revised Table in section F on United Nations Sustainable Development Goals (SDG)
V 3.0	05/07/2020	▪ Revised version released on approval by Steering Committee as per GCC Program Process; ▪ Revised version contains following changes: ○ Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC); ○ Considered and addressed comments raised by Steering Committee: ➢ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and ➢ electronic consultations EC01-Round 01 (15.09.2019 – 25.09.2019), EC01-Round 02 (27.03.2020 – 27.06.2020). ○ Feedback from Technical Advisory Board (TAB) of ICAO on GCC submission for approval under CORSIA[52];
V 2.0	25/06/2019	▪ Revised version released for approval by the GCC Steering Committee. ▪ Revised version includes additional details and instructions on the information to be provided, consequent to the latest developments world-wide (e.g., CORSIA EUC).
V 1.0	01/11/2016	Initial version released under the GCC Program Version 1

[52]See ICAO recommendation for conditional approval of GCC at https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/Excerpt_TAB_Report_Jan_2020_final.pdf

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