

TEMPLATE

MONITORING REPORT

PUBLICATION DATE 14.10.2020

VERSION v. 1.1

RELATED SUPPORT - **TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

Key Project Information

0 - Description of project

0 - Implementation of project

0 - Description of monitoring system applied by the project

0 - Data and parameters

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KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS 2475
Title of the project (s) covered by monitoring report	Icdas Biga Wind Farm Project
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	PDD Version 6.0 completed on 18/02/2017
Version number of the monitoring report	06
Completion date of the monitoring report	23/08/2023
Date of project design certification	11/01/2017
Date of Last Annual Report	N/A
Monitoring period number	2 nd
Duration of this monitoring period	22/04/2018 - 20/04/2021
Project Representative	1- İçdaş Çelik Enerji Tersane ve Ulaşım San. A.Ş. (Private Entity, Project Owner) 2- GTE Karbon Sürdürülebilir Enerji Eğitim Danışmanlık Ticaret A.Ş. (Private Entity, Project Developer)
Host Country	Turkey
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	ACM0002 - Grid-connected electricity generation from renewable sources, version 16
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 4: Quality Education	Number of students receive quality education	221/783	Students get scholarships/s tudents get trained at ICDAŞ sport club
SDG 7: Affordable and Clean Energy	MWh of renewable energy generated	469,401.52	MWh
SDG 8: Decent Work and Economic Growth	Number of people hired	15 (2018) 14 (2019) 17 (2020) 17 (2021)	People hired
SDG 13: Climate Action	Emission Reductions	246,650	VERs

Table 2 – Product Vintages

		Amount Achieved			
Start Dates	End Dates	Students	MWh	People	VERs
22/04/2018	31/12/2018	70/296	110,536.44	15	58,082
01/01/2019	31/12/2019	65/198	146,678.90	14	77,073
01/01/2020	31/12/2020	47/191	166,724.90	17	87,607
01/01/2021	20/04/2021	39/98	45,461.28	17	23,888

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The project aims to generate electricity from wind, reduce the need of fossil fuel and import needs and increase the diversity in energy generation. The project corresponds to the İçdaş Biga Wind Power Plant of İçdaş Çelik Enerji Tersane ve Ulaşım San. A.Ş. The firm capacity of the plant is 60.8MW_m and 60MW_e and consists of 19 turbines with 3.2 MW_m capacity each. Annual estimated electricity generation amount is 168 GWh annually and all of it is fed into the national grid. The greenhouse gas emission-free electricity generated by the project is helping the grid mix to lower its carbon intensity. The project is expected to reduce approximately 85,228 tonnes of CO₂e per year and 596,595 tonnes of CO₂e for the first crediting period. During the first monitoring period, 71,983 tonnes of CO₂e emission reduction is achieved (6,057ton CO₂e for the period of 17.10.2015-31.12.2015 and 65,926 ton CO₂e for the period of 01.01.2016-31.10.2016). During the second monitoring period, 246,650 tonnes of CO₂e emission reduction is achieved (58,082 ton CO₂e for the period of 22.04.2018-31.12.2018, 77,073 ton CO₂e for the period 01.01.2019-31.12.2019, 87,607 ton CO₂e for the period 01.01.2020-31.12.2020 and 23,888 ton CO₂e for the period 01.01.2021-20.04.2021).

The area, where the turbines and switchyard are installed, was forestland. The building and equipment cover only 5% of the total project area. The nearest residential areas are Değirmencik, Örtülüçe, Çakırlı, Kemer and Aksaz villages and Karabiga town. The project is developed with local environmental as well as regional and national regulations. It has also been approved by the Çanakkale Provincial Directorate of Environment and Forestry that the project does not require EIA.

In addition to environmental positive impact, the project also has economical positive impacts. During the construction, people from surrounding localities are hired and hence contributing to the local economy.

Moreover, as a part of the project activities, several physical supports for local schools are provided, for example, construction of new classes, granting computers and projectors. Scholarships for high school and university students are provided and young people are educated at the yachting and swimming clubs of the company. All these activities help to increase the Human and institutional capacity of the local people.

A.2. Location of project

The project is located on the hills around Canakkale in Turkey. The turbines are erected at locations of Keçibayırı Tepe-Muhittin Tepe, Zeytin Tepe-Boz Tepe, Hacıdede Tepe-Güllüdere Tepe, Küçükalan Tepe- Üçyollar around Biga District, which is the largest district of Çanakkale Province, around 90km from the city centre.

Gönen surrounds the district in the east, Lapseki in the west, Çan in the South and Sea of Marmara in the north. Total population of the district is 80,849 and total population of the central district is 36,542.

The coordinates of the turbines installed at the project activity and the corner coordinates of the project area are listed in Table 1 and 2.

Table 1 Coordinates of the location of the wind turbines(Datum: ITRF96)

	East	North		East	North
T1	512085	4474369	T11	515729	4471836
T2	512372	4474171	T12	516038	4471648
T3	513246	4474221	T13	515958	4471222
T4	513341	4473807	T14	516529	4471091
T5	513650	4473663	T15	519248	4477433
T6	513460	4472973	T16	519483	4477183
T7	513717	4472675	T17	520077	4477458
T8	513631	4471981	T18	521462	4478454
T9	514500	4472930	T19	521819	4478189
T10	514607	4472437			

Source: Electricity Generation Licence

A.3. Reference of applied methodology

The approved methodology to apply to the project is ACM0002, "Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources", version 16.0

<https://cdm.unfccc.int/UserManagement/FileStorage/0X6IERWMG92J7V3B8OTKFSL1QZH5PA>

The following methodological tools in line with the methodology are used:

- “Methodological Tool: Tool to calculate the emission factor for an electricity system”, Version 04.0
<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf>
- “Methodological Tool: Tool for the demonstration and assessment of additionality”, Version 07.0.0
<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>
- “Guidelines on Common Practice”, Version 02.0
https://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid44.pdf
- “Guidelines on the Assessment Of Investment Analysis”, Version 05
https://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf

A.4. Crediting period of project

The first crediting period of the project starts on 17/10/2015 and ends on 16/10/2022. The monitoring period for this report is 22/04/2018 - 20/04/2021. (Including both days)

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The Icdas Biga Wind Power Plant has a capacity of 60MW with 19 wind turbines. The wind turbines are purchased from the General Electric Company. The wind turbine employs a doubly fed induction generator with a power converter interfacing the rotor to the grid. The wind turbine is capable of supplying/drawing reactive power to/from the grid thus contributing to grid voltage support.

3.2 is a three-bladed horizontal axis upwind wind turbine with rated power of 3200kW and rotor diameter of 103m. The SL3000/113 Normal Temperature Type is applicable to areas in normal environmental temperature with survival ambient temperature of $-20^{\circ}\text{C} \sim +50^{\circ}\text{C}$ and operational ambient temperature of $-15^{\circ}\text{C} \sim +30^{\circ}\text{C}$. It consists of rotor, blades, blade pitch control system, hub, gearbox, bearings, brake system, generator, gearbox/generator coupling, yaw system, tower, nacelle, wind sensor and lightning rod, lightning protection, control system, power converter and medium voltage transformer and switchgear. The rotor is connected to the gearbox flange via a hub spacer, which is fitted in the inner ring of main bearing. The outer ring of the main bearing is bolted to the main frame. The rotor load transmits to the main frame via main bearing. The main frame is connected to the tower top flange via yaw bearing. Inside the nacelle there employs a maintenance crane to perform maintenance, overhaul, and exchange for gearbox, generator, and rotor blades.

Table 3 Turbine Specifications

Design Data	
Rated Power	3.2 MW
Rotor Blade Diameter	103 m
Tower Hub Height	85m
Lifetime	20 years*
Rotor Blade	
Number of rotor blades	8,332 m ²
Swept Area	7389.8 m ²
Rated Speed	14 rpm
Rotating Speed Range	9.2-14.8 rpm
Rotation	Clockwise
Number of Rotor Blades	3
Lightning Detector	
Signal	Ultrasonic
Generator	
Type	Double-fed induction generator
Gear Box	
Stages	multi-stage planetary/helical design

Reference: Technical Documentation Wind Turbine Generator Systems 2.x Series, GE Power and Water

*The lifetime of the equipment is gathered from the Design Evaluation Conformity Statement

İçdaş wind farm is connected to the grid via Turkish Electricity Transmission Company's (TEİAŞ) Biga and Çan transformer stations. The connection point and the location of the electricity metering equipment are demonstrated in the single line diagram. (Figure 1)

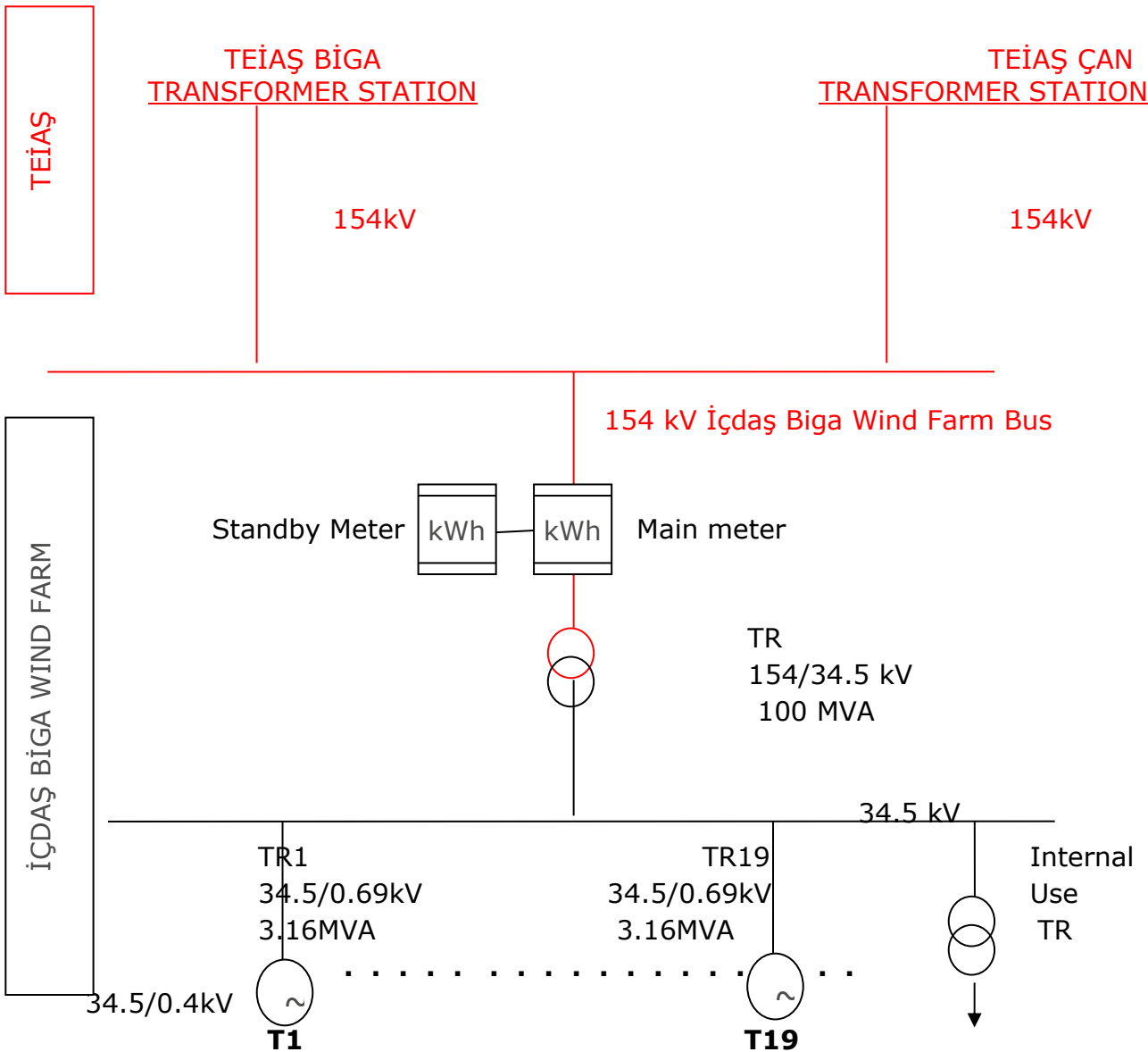


Figure 1 – Single Line Diagram of the Power Plant

The project is implemented as it is explained in the PDD. The construction agreement with the subcontractor was signed on the 25.03.2015 and the construction started on 02.04.2015. The project started to generate electricity on 17.10.2015 with 5 turbines. On 02.12.2015, 7 of the remaining turbines started to operate and on 31.12.2015 4 more turbines started to operate. On 22.01.2016, the remaining 3 turbines started to generate electricity and the project reached full capacity. Therefore, the net electricity generation in the first year is lower than the following years. The milestones of the project are listed at Table 4.

Table 4 Schedule of the Project Activity

Date	Activity
22.04.2011	Bidding Invitation from TEİAŞ for the electricity generation licence. Issuance of the initial license
19.08.2011	Issuance of document that the project does not require EIA
11.01.2012	Issuance of Electricity Generation License
07.02.2012	Investment decision date (Board decision on consideration of carbon finance)
11.01.2012	Issuance of Electricity Generation License
01.04.2012	Agreement with the Carbon Project Developer
24.05.2013	Date of Local Stakeholder Meeting
10.07.2013	Remark of Directorate Of Nature Conservation And National Parks on the cancellation of the six turbines and precautions on bird migration routes.
23.08.2013	First submission of Local Stakeholder Consultation Report to Gold Standard.
9.12.2014	The project start date (agreement with the equipment provider)
10.12.2014	Completion of the Energy Assessment Report
15.12.2014	1 st Loan Agreement
27.01.2015	Revision of the Electricity Generation Licence according to the new turbine capacities.
27.03.2015	2 nd Loan Agreement
25.03.2015	Construction Agreement
02.04.2015	Start of Construction

18.09.2015	System usage agreement
16.10.2015	Certificate of provisional acceptance of the project
17.10.2015	Start date of the crediting period (start of electricity generation with first 5 turbines)
02.12.2015	7 of the remaining turbines start to generate electricity
31.12.2015	4 of the remaining turbines start to generate electricity
11.01.2016	Start of Validation (Contract date between the project owner and the DOE)
22.01.2016	Last 3 turbines start to generate electricity
01.08.2016	Start of Stakeholder Feedback Round (SFR) (the project documents were publicly available on the project owner's website)
08.08.2016	Live SFR meeting at Örtülüce Village
11/01/2017	GS Registration Date
14/02/2020	1 st verification completed for the period of 17.10.2015 - 31.10.2016(Date of final feedback from Gold Standard on issuance review)

B.1.1 Forward Action Requests

At the first performance review Gold Standard raised a Forward Action Request:

"For the next monitoring period, the verifying DOE shall conduct interviews with the locals on impact of project activity as well as the grievance mechanism as well. The verifying DOE shall provide its opinion on the Verification Report."

The project owner is in contact with local stakeholders during the whole monitoring period. In order to keep the records for the grievance mechanism, the local headmen are visited regularly, and the grievance logbooks are checked.

Moreover, at the transition review Gold Standard raised a Forward Action Request:

5.1.39: Transparent, annual update reports need to be provided for Projects that have achieved the Project Design Certification stage or have successfully transitioned to Gold Standard for the Global Goals. An annual report shall be submitted for each monitoring year by end of next calendar year for which verification is not completed. If a verification is in progress but not completed, then an Annual Report is still required by the end of calendar year.

The transition review of the project is completed on 23/09/2021 and the verification process for the period of 22/04/2018 - 20/04/2021 started with the site visit on 22/04/2021 and expected to be completed before the end of 2021. However, the verification process cannot be completed due to the busy verification load in the region in line with transition requirements for projects listed under previous GS version, i.e. 1.0, 2.0, 2.1 or 2.2. The annual report for the monitoring period 2020 will be submitted following with an deviation request.

5.1.50: Transitioning projects, maintaining their existing crediting cycle shall undergo Performance Certification no later than the first two years after project implementation or design certification, whichever is later, and once every three years after that, unless the Verifier provides a convincing case for less frequent visits as part of the Verification Report.

1st performance certification of the project for the period of 17.10.2015 -31.10.2016 was carried out within the first two years after the project implementation date and completed on 14/02/2020. For the second performance certification the project owner raised a deviation request to carry out the second performance certification for the period between 01.11.2016 and 22.04.2021. Gold Standard has partially approved the deviation request and the second performance certification is set for the period of 22/04/2018 - 20/04/2021.

B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

There is no deviation from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology or applied standardized baseline.

The project owner raised a deviation request to carry out the second Performance Certification for the period between 01.11.2016 and 22.04.2021. Gold Standard has partially approved the deviation request.

The project is only allowed to submit issuance request of ERs and SDG impacts for the following periods:

- a. For a three-year retroactive period from the date of physical site visit conducted by a VVB, which took place at the time of first performance certification

(on 20/12/2016), i.e., for a period starting from and including 01/11/2016 to 20/12/2016 (since 01/11/2016 is the start date of the current monitoring period)

b. For a three-year retroactive period from the date of physical site visit conducted by a VVB, which took place for the subsequent performance certification (on 22/04/2021), i.e., for a period starting from 22/04/2018 to 20/04/2021 (inclusive) and not earlier.

The Project shall not be issued ERs and SDG impacts for the period between 21/12/2016 to 21/04/2018.

Thus, the second performance certification is changed to 22/04/2018 - 20/04/2021.

The project owner raised another deviation request on 10/05/2023 regarding the submission of Annual Reports for the missing years. The project owners do not conduct verification in each year (due to VVB costs, etc.) but rather need verification consultancy in each 2-3 years. In this case, the project developer and project owners sign the agreement for the verification of the past several years. When the project developer starts verification process, the annual reports are most often not submitted to GS yet. The deviation has been approved by GS on 29/05/2023. Thus, Annual Reports of years 2017, 2018, 2019, 2020 and 2021 have been uploaded to SustainCERT along with this Monitoring Report under Performance Review No.2.

B.2.2. Corrections

Not available.

B.2.3. Changes to start date of crediting period

There is no change in the start date of crediting period.

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not available

B.2.5. Changes to project design of approved project

Not available

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The most important parameter to estimate the emission reductions is the quantity of net electricity generation supplied by the project plan to the grid every year. The monitoring of the net electricity generation is online and continuous. The net electricity generation are being monitored via two meters, one main and one standby, and the metering are recorded by TEİAŞ remotely. The hourly readings are recorded by the technicians of the project owner every hour to the SCADA system and the readings of the TEAİŞ and project owner are crosschecked for monthly invoicing. The management structure is also demonstrated at Figure 2.

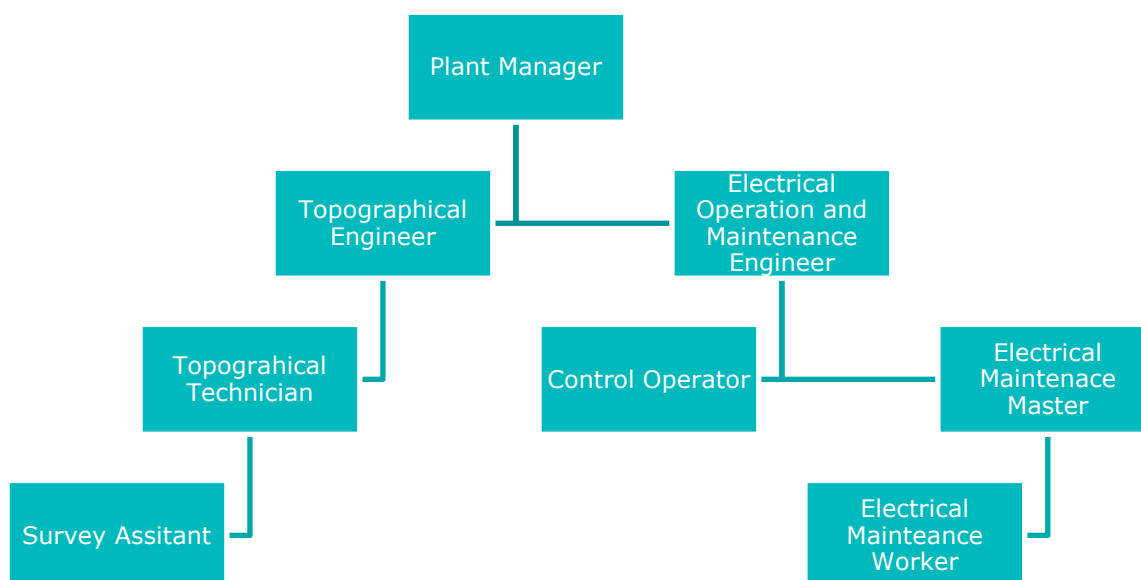


Figure 2 Management Structure of the Wind Farm

Plant Manager is responsible for preparing WPP operation production, breakdown, maintenance plans and organizations. He also provides the reports requested by the management regarding the forward-looking plans and programs and the actual situation on a regular basis.

Topographical Engineer is responsible for procuring and maintaining projects, documents and catalogues related to the job. Topographical engineer makes the necessary organizations for the subcontractor companies and controls their work.

Topographical Technician determines the shape, location, roughness of the land pieces to create the maps.

Survey Assistant ensures the maintenance of measuring instruments and keep existing documents and help topographical engineer and topographical technician during the surveys.

Electrical Operation and Maintenance Engineer is responsible for the technical and administrative operation of the plant. He/she is responsible to take the necessary measures to eliminate any malfunctions.

Control Operator ensures the safe operation of the system by constantly monitoring the values on the control monitor. He takes records of the production/consumption counter indices and calculates and controls the production/consumption values of the power plant.

Electrical Maintenance Master ensures that the electrical equipment works in accordance with their design parameters, without any problems, and that the faults are eliminated as soon as possible and without interrupting the production.

Electrical Maintenance Worker is responsible for the efficient operation of electrical equipment and the transmission of electrical energy. Moreover, helps electrical maintenance master for the maintenance and repair.

Project Consultant gets all the electricity generation/consumption data from the project owner and calculates the emission reductions achieved during the monitoring period. Moreover, project consultant prepares the necessary documents (monitoring report, annual report etc.) for the verification.

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Relevant Indicator	SDG	SDG 13: Climate Action
Data/parameter		EF _{grid,CM,y}
Unit		tCO ₂ /MWh
Description		Combined margin CO ₂ emission factor for grid connected power generation in year y
Source of data		Calculated according to the Tool to calculate the emission factor for an electricity system, Version 04.0
Value(s) applied		0.5255 tCO ₂ /MWh
Choice of data or Measurement methods and procedures		The parameter is calculated according to the Tool to calculate the emission factor for an electricity system', Version 04.0. The details of calculation method are provided in "Emissions Calculations_2 nd MP" excel document and provided to the DOE.
Purpose of data		Baseline emission calculations
Additional comment		-

Relevant Indicator	SDG	SDG 13: Climate Action																																						
Data/parameter	FC _{i,y}																																							
Unit	Tonnes or 10 ³ m ³																																							
Description	Amount of fossil fuel type consumed in the grid in year y																																							
Source of data	Turkish Electricity Transmission Company (TEİAŞ), Electricity Statistics http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2013/yak%C4%B1t48-53/49.xls																																							
Value(s) applied	<table><tr><td></td><td colspan="4">Fuel Consumption (ton or 10³ m³)</td></tr><tr><td>Fuel Type</td><td>2010</td><td>2011</td><td colspan="2">2012</td></tr><tr><td>Natural Gas</td><td>21,783,414</td><td>22,804,587</td><td colspan="2">23,090,121</td></tr><tr><td>Fuel Oil</td><td>891,782</td><td>531,608</td><td colspan="2">564,796</td></tr><tr><td>Diesel Oil</td><td>20,354</td><td>15,047</td><td colspan="2">176,379</td></tr><tr><td>Coal</td><td>7,419,703</td><td>10,574,434</td><td colspan="2">12,258,462</td></tr><tr><td>Lignite</td><td>56,689,392</td><td>61,507,310</td><td colspan="2">55,742,463</td></tr></table>						Fuel Consumption (ton or 10 ³ m ³)				Fuel Type	2010	2011	2012		Natural Gas	21,783,414	22,804,587	23,090,121		Fuel Oil	891,782	531,608	564,796		Diesel Oil	20,354	15,047	176,379		Coal	7,419,703	10,574,434	12,258,462		Lignite	56,689,392	61,507,310	55,742,463	
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Lignite	56,689,392	61,507,310	55,742,463																																					
Choice of data or Measurement methods and procedures	No plant specific data was available, thus the total fuel consumptions of all plants connected to the grid with the same fuel type are used. Ex ante option is chosen, thus the most recent three historical years (2012, 2011 and 2010) data is used.																																							
Purpose of data	Baseline emission calculations																																							

Additional comment	-
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Relevant Indicator	SDG	SDG 13: Climate Action																															
Data/parameter	NCVi,y																																
Unit	GJ/mass or volume unit																																
Description	Net calorific value (energy content) of fossil fuel type i in year y in Turkish grid.																																
Source of data	Turkish Electricity Transmission Company (TEİAŞ), Electricity Statistics http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2013/yak%C4%B1t48-53/51.xls																																
Value(s) applied			<table><tr><th></th><th colspan="3">NVC(GJ/Unit)</th></tr><tr><th>Fuel Type</th><th>2010</th><th>2011</th><th>2012</th></tr><tr><td>Natural Gas</td><td>37.3557</td><td>37.0731</td><td>36.9231</td></tr><tr><td>Fuel Oil</td><td>40.2040</td><td>41.5550</td><td>41.6682</td></tr><tr><td>Diesel Oil</td><td>43.0614</td><td>43.1219</td><td>44.6832</td></tr><tr><td>Lignite</td><td>22.3004</td><td>22.7777</td><td>24.3256</td></tr><tr><td>Coal</td><td>7.1260</td><td>7.2929</td><td>7.0246</td></tr></table>				NVC(GJ/Unit)			Fuel Type	2010	2011	2012	Natural Gas	37.3557	37.0731	36.9231	Fuel Oil	40.2040	41.5550	41.6682	Diesel Oil	43.0614	43.1219	44.6832	Lignite	22.3004	22.7777	24.3256	Coal	7.1260	7.2929	7.0246
	NVC(GJ/Unit)																																
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Lignite	22.3004	22.7777	24.3256																														
Coal	7.1260	7.2929	7.0246																														
Choice of data or Measurement methods and procedures	The heating values (Tcal) for each type of fuel are given by TEİAŞ. The heating values are transformed into GJ by multiplying with 4184. Then the total fuel consumptions for the specific type of fuel (FCi,y)are divided by the heating value to find out NCVi,y. Ex-ante option is chosen, thus the most recent three historical years (2012, 2011 and 2010) data is used.																																
Purpose of data	Baseline emission calculations																																
Additional comment	-																																

Relevant Indicator	SDG	SDG 13: Climate Action
Data/parameter	EFCO2,i,y	
Unit	tCO2/GJ	
Description	CO2 emission factor of fossil fuel type i used in year y in Turkish grid.	

Source of data	IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 2.2 of Chapter 2 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf														
Value(s) applied	<table><tr><th>Fuel Type</th><th>EF(tCO₂/GJ)</th></tr><tr><td>Natural Gas</td><td>0.0543</td></tr><tr><td>Fuel Oil</td><td>0.0755</td></tr><tr><td>Diesel Oil</td><td>0.0726</td></tr><tr><td>Lignite</td><td>0.0909</td></tr><tr><td>Other Bituminous Coal</td><td>0.0895</td></tr></table>			Fuel Type	EF(tCO ₂ /GJ)	Natural Gas	0.0543	Fuel Oil	0.0755	Diesel Oil	0.0726	Lignite	0.0909	Other Bituminous Coal	0.0895
Fuel Type	EF(tCO ₂ /GJ)														
Natural Gas	0.0543														
Fuel Oil	0.0755														
Diesel Oil	0.0726														
Lignite	0.0909														
Other Bituminous Coal	0.0895														
Choice of data or Measurement methods and procedures	The values were given with the unit of kgCO ₂ /TJ by IPCC. They are converted to tonne CO ₂ /GJ by dividing to 1,000,000. Ex ante option is chosen, will be monitored once.														
Purpose of data	Baseline emission calculations														
Additional comment	-														

Relevant SDG Indicator	SDG 13: Climate Action												
Data/parameter	$\eta_{m, y}$												
Unit	Ratio												
Description	Average net energy conversion efficiency of power unit m in year y in Turkish grid												
Source of data	Electricity Generation Company (EÜAŞ) http://www.uevf.com.tr/uevf1/sunumlar/ot04-04.pdf												
Value(s) applied		<table><tr><th>Fuel Type</th><th>η</th></tr><tr><td>Natural Gas</td><td>58%</td></tr><tr><td>Fuel Oil</td><td>55%</td></tr><tr><td>Lignite</td><td>42%</td></tr><tr><td>Coal</td><td>47%</td></tr></table>	Fuel Type	η	Natural Gas	58%	Fuel Oil	55%	Lignite	42%	Coal	47%	
Fuel Type	η												
Natural Gas	58%												
Fuel Oil	55%												
Lignite	42%												
Coal	47%												
Choice of data or Measurement methods and procedures	There were no plant specific data for energy conversion efficiency. Thus, approximate η values are used based on reference data.												

Purpose of data	Baseline emission calculations
Additional comment	-

D.2 Data and parameters monitored

Relevant SDG Indicator	SDG 13: Climate Action
Data / Parameter	ER_y
Unit	t CO ₂ e/yr
Description	Emission reduction achieved in year y
Source of data	Emission reduction calculations
Value(s) applied	58,082 tonnes of CO ₂ e for 22/04/2018 - 31/12/2018 77,073 tonnes of CO ₂ e for 01/01/2019 31/12/2019 87,607 tonnes of CO ₂ e for 01/01/2020 31/12/2020 23,888 tonnes of CO ₂ e for 01/01/2021 20/04/2021
Measurement methods and procedures	ACM0002, "Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources", version 16.0 was used and the project emissions, baseline emissions, leakage and resulting emission reductions are calculated. The formulas are as follows; $ER_y = BE_y - PE_y$ Since $y PE_y = 0$ and $LE_y = 0$ Then $ER_y = BE_y$ $BE_y = EF_y \times EG_y$
Monitoring frequency	EG_y is measured continuously. $EF_{grid,CM,y}$ is fixed ex ante for the crediting period.
QA/QC procedures	The emission reduction calculations are based on two parameters EF_y and EG_y . EF_y is fixed for the first crediting period and the calculations are validated/verified by the DOE. The QA/QC procedures for EG_y is provided in the next table.
Purpose of data	To monitor the contribution of the project to SDG 13: Climate Action
Additional comment	The details of emission reduction calculations are provided at section A.2.

Relevant SDG Indicator	SDG 13: Climate Action SDG 7: Affordable and clean energy				
Data / Parameter	EGy				
Unit	MWh/yr				
Description	Quantity of net electricity generation supplied by the project to the grid in year y				
Source of data	Monthly meter reading reports based on bilateral agreement between TEİAŞ and project owner				
Value(s) applied	110,536.44 MWh (22/04/2018 - 31/12/2018) 146,678.90 MWh (01/01/2019 - 31/12/2019) 166,724.90 MWh (01/01/2020 - 31/12/2020) 45,461.28 MWh (01/01/2021 - 20/04/2021)				
Measuremen t methods and procedures	The electricity generation is measured via a three-phase electricity meter and a standby meter in case of failures of the main meter, which are in control of TEİAŞ.				
		Brand	Type	Accuracy Class	Serial Number
	Main meter	Itron	SL761W071 2016	Active Energy: Class 0.2S Reactive Energy: Class 2	73055339
	Standby Meter	EMH	LZQJ-XC- P2FB-BB- GPB-L4- 080018- F50/Q	Active Energy: Class 0.2S Reactive Energy: Class 2	5151977
Monitoring frequency	The data is measured continuously and recorded hourly and monthly.				

QA/QC procedures	The data measured via main meter is read every hour by the technicians and recorded on an excel file for the records of the project owner. In addition to company records, the hourly data is saved automatically on TEİAŞ's load dispatch centre's online system via remote reading of the meters. The monthly records of TEİAŞ and project owner are used for crosschecking. The quality assurance of the meters are meters by annual periodic inspections, which includes; - Testing of the meters to confirm that the measurement accuracy within the allowed range. - Controlling of the measurement equipment - Physical control of the equipment The meters will be renewed every 10 years. The requirements of periodic inspections are gathered from the system usage agreement between TEİAŞ and project owner. Both meters are subject to national metrological control legislation and calibrated before installation. The main meter is changed in 2017 and calibrated on 31.07.2017 and the standby meter was calibrated by the manufacturer on 01/04/2015. The sanity tests are applied every year till 2018. After 2018, the sanity tests are applied every two years according to the TEİAŞ's decision. The dates of the sanity test applied for this monitoring period are: - 12/11/2018 - 19/11/2020
Purpose of data	Baseline emission calculations To monitor the contribution of the project to SDG 7 - Affordable and clean energy
Additional comment	-

Relevant SDG Indicator	SDG 4: Quality Education
Data / Parameter	Human and institutional capacity / Number students provided scholarship, sports training and quantity of support provided.
Unit	-
Description	The project owner provides scholarships and sport trainings at İçdaş Sport Club for local students and physical support for local schools and villages.
Source of data	Project owner financial and operational records

Value(s) applied	The project owner provided support to the local community in many ways. The list of activities and the financial value of the supports is provided to the DOE. Regarding the scholarships; - 70 students from Çanakkale region were rewarded with scholarships (22/04/2018 - 31/12/2018) - 65 students from Çanakkale region were rewarded with scholarships (01/01/2019 - 31/12/2019) - 47 students from Çanakkale region were rewarded with scholarships (01/01/2020 - 31/12/2020) - 39 students from Çanakkale region were rewarded with scholarships (01/01/2021 - 20/04/2021) Regarding the sports clubs; - 168 teenagers attended swimming and 128 teenagers attended sailing training at Içdaş Sports Club (22/04/2018 - 31/12/2018) - 137 teenagers attended swimming and 61 teenagers attended sailing training at Içdaş Sports Club (01/01/2019 - 31/12/2019) - 133 teenagers attended swimming and 58 teenagers attended sailing training at Içdaş Sports Club (01/01/2020 - 31/12/2020) - 44 teenagers attended swimming and 54 teenagers attended sailing training at Içdaş Sports Club (01/01/2021 - 20/04/2021)
Measurement methods and procedures	The records of the number and list of students attending to the Içdaş Sport Club and scholarship awards are kept by the project owner. Moreover, physical, and financial aids for local schools and villages are also kept by the project owner. The accounting records are used to calculate the parameters.
Monitoring frequency	The records are kept as they occur. The reporting is provided annually.
QA/QC procedures	The list of students who attend the Içdaş sailing/swimming schools and the financial value of the supports are provided to the DOEs during each verification.
Purpose of data	To monitor the contribution of the project to SDG 4: Quality Education
Additional comment	-

Relevant SDG Indicator	SDG 8 – Decent work and Economic Growth
Data / Parameter	Number of Jobs created due to the project activity
Unit	-
Description	Number of Jobs created due to the project activity during the construction and operation phase.
Source of data	Official records from Social Security Institution
Value(s) applied	-15 workers were employed at the wind farm (22/04/2018 - 31/12/2018) -14 workers were employed at the wind farm (01/01/2019 - 31/12/2019) -17 were employed at the wind farm (01/01/2020 - 31/12/2020) - 17 workers were employed at the wind farm (01/01/2021 - 20/04/2021)
Measurement methods and procedures	In order to contribute the SDG, the project owner; - Set priority to local people for any new job opportunity. - Is in contact with local education centres (high schools, universities) to develop more education courses to train more local people and create opportunities to create them get a more qualified job. The number of employees working for the project and their professional background information are kept by the human resources department.
Monitoring frequency	The records are being kept by the human resources department and reported annually.
QA/QC procedures	The records of human resources records are supported by the official records of Social Security Institution.
Purpose of data	To monitor the contribution of the project to SDG 8 – Decent work and Economic Growth
Additional comment	

Relevant SDG Indicator	Safeguarding Principle 9.10 - High Conservation Value Areas and Critical Habitats
Data / Parameter	Biodiversity / Number of affected birds and mammals
Unit	-
Description	Number of affected birds and mammals Progress of commitments in the commitment letter.

Source of data	The monitoring records carried out by expert academicians and the biologist working for the project owner. Assessment reviews of the DNCNP on the monitoring process. Icdaş Biga Wind Farm Monitoring Forms
Value(s) applied	The project area is observed during the migration periods. The monitoring periods and the number of effected animals are; - No harmed animal was identified due to the project activity for the migration period April 2018 and October2018 - During the migration period March 2019 and October2019, a dead weasel found on 08.03.2019 on the side of the road because the wind farm site roads were used by the villagers to reach their villages. - During the migration period March 2020 and October2020, two dead birds were found away from the turbines on 28.08.2020 and 10.09.2020. Considering their wounds and location of the carcasses, they were assumed to be hit by vehicles. - No harmed animal was identified due to the project.
Measurement methods and procedures	-Carry out monitoring activities the bird migrations and mammal species -Employment of a bird watcher or biologist to monitor the bird migrations -Shut down the turbines during the bird migrations -Carry out any required mitigation measures upon the request of DNCNP other than the measures stated in the commitment letter of the project owner to the DNCNP on 10.02.2015.
Monitoring frequency	The monitoring activities are carried every migration period (spring and fall) by full day observations for at least 15 days.
QA/QC procedures	During the bird immigration periods the number of birds affected by the turbines are monitored for two years and a report are sent to DNCNP every six months. The DNCNP assessed the monitoring reports and provided feedback about the monitoring.
Purpose of data	Maintain the current habitat and avoid harming birds on migration.

Additional comment	Additional information is provided in section F.
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D.3. Comparison of monitored parameters with last monitoring period

Not applicable to the project activity

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period

D.4. Implementation of sampling plan

Not applicable.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

SDG 4 - Quality Education

In the baseline scenario, no students get scholarships to carry out their education in the local villages and towns.

SDG 7 - Affordable and Clean Energy

In the baseline scenario, no electricity will be generated. Thus , the baseline value will be 0.

SDG 8 - Decent Work and Economic Growth

In the baseline scenario, no job opportunities will be available for the people in the region.

SDG 13: Climate Action

Baseline emissions

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that existing grid-connected power plants and the addition of new grid-connected power plants would have generated all project electricity generation above baseline levels. The baseline emissions are to be calculated as follows:

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

Where:

- BE_y = Baseline emissions in year y (t CO₂/yr)
- $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VER project activity in year y (MWh/yr)
- $EF_{grid,CM,y}$ = Combined margin CO₂ 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 CO₂/MWh)

Calculation of $EG_{PJ,y}$

Since the project activity is the installation of a Greenfield power plant, then:

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

Where:

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

Thus,

$$EG_{PJ,y} = 168,192 \text{ MWh/year}$$

Calculation of $EF_{grid,CM,y}$

In order to calculate the $EF_{Grid,CM,y}$ Tool to calculate the emission factor for an electricity system, Version 04 is used. There six major steps for the calculations. The details and results of each step are as follows:

Step 1: Identify the relevant electricity systems

The project electricity system is the national Turkish grid with all power plants connected to the system.

For the purpose of determining the operating margin emission factor, the CO₂ emission factor(s) for net electricity imports from a connected electricity system are calculated as 0 t CO₂/MWh. Moreover, 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)

Only grid power plants are included in the calculation.

Step 3: Select a method to determine the operating margin (OM)

The simple Operating Margin (OM) method has been used to determine the OM as low-cost/must-run resources constitute less than 50% of total grid generation in average of the five most recent years as shown in Table 5 Share of low-cost/must run resources in total Turkish grid generation.

Table 5 Share of low-cost/must run resources in total Turkish grid generation

Year	Electricity generated by fossil fuel-fired plants (GWh)	Electricity generation by low-cost/must run plants* (GWh)	Total Electricity Generation (GWh)	% of Low - Cost/Must Run
2011	171,638.3	57,756.8	229,395.1	25.18
2012	174,871.7	64,625.1	239,496.8	26.98
2013	171,812.5	68,341.5	240,154.0	28.46
2014	200,416.6	51,546.2	251,962.8	20.46
2015	179,366.4	82,416.9	261,783.3	31.48

* Low-Cost/Must run plants are hydro, wind, geothermal and solar power plants in Turkey. Coal fired plants are not defined as a must run resource.

Ex-ante option is chosen for the calculation of the simple OM. 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, a 3-year generation-weighted average (2015, 2014 and 2013), based on the most recent data available at the time of submission of the VER-PDD to the DOE for validation is used.

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

The Simple Operating Margin (OM_{simple}) emission factor ($EF_{Grid,OMsimple,y}$) is calculated as the generation-weighted average emissions per electricity unit (tCO₂/MWh) of all generating sources serving the system, not including low operating cost and must run power plants.

Due to the lack of information available on each power unit, Option B has been chosen to calculate OM_{simple} . Option B is used, since the following conditions are met:

- (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.

Thus, as per the *Tool to calculate the Emission Factor for an electricity system*, the following formula applies:

$$EF_{Grid,OM,simple,y} = \frac{\sum_i (FC_{i,y} * NCV_{i,y} * EF_{CO2,i,y})}{EG_y}$$

Where:

$EF_{Grid,OMsimple,y}$ = Simple operating margin CO₂ emission factor in year y (tCO₂/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)

$EF_{CO2,i,y}$ = CO₂ emission factor of fossil fuel type i in year y (tCO₂/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 relevant year as per the data vintage chosen (2013, 2014, 2015).

For this approach (simple OM) to calculate the operating margin, the subscript m refers to the power plants/units delivering electricity to the grid, not including low-cost/must-run power plants/units and including electricity imports to the grid. Electricity imports are treated as one power plant m .

$FC_{i,y}$ for each type of fuel consumed in the project electricity system in 2013, 2014 and 2015 are listed in Table 6.

Table 6 Fuel consumption values

	Fuel Consumption (ton or 10 ³ m ³)		
Fuel Type	2013	2014	2015
Natural Gas	22,909,746	25,426,014	20,914,868
Fuel Oil	573,534	754,283	516,912
Diesel Oil	129,359	119,988	238,388
Coal	12,105,930	14,501,934	16,629,492
Lignite	47,120,306	57,696,139	49,940,131

Net calorific value (energy content) of each fossil fuel type calculated since it was not published. The heating values (Tcal) for each type of fuel are given by TEİAŞ. The heating values are transformed into GJ by multiplying with 4184. Then the total fuel consumptions for the specific type of fuel($FC_{i,y}$) are divided by the heating value to find out $NCV_{i,y}$. Ex ante option is chosen, thus the most recent three historical years (2013, 2014 and 2015) data is used.

Table 7 Net Calorific Values for fossil fuels

Fuel Type	NVC(GJ/Unit)		
	2013	2014	2015
Natural Gas	37.1183	37.4610	37.8114
Fuel Oil	42.5834	41.2918	44.1881
Diesel Oil	44.0924	43.4133	43.7510
Lignite	23.7731	23.9102	24.0591
Coal	7.2524	7.1007	7.1563

Due to the lack of published CO₂ emission factors of fossil fuel types used in Turkey, the values are gathered from the 2006 IPCC Guidelines on National GHG Inventories default values at the lower limit of the uncertainty at a 95% confidence interval. Since ex-ante option is chosen the values will not be monitored during the crediting period.

Table 8 CO₂ values for fossil fuels

Fuel Type	EF (tCO ₂ /GJ)
Natural Gas	0.0543
Fuel Oil	0.0755
Diesel Oil	0.0726
Lignite	0.0909
Coal	0.0895

EG_y, the last parameter used for the calculation of simple OM, is gathered from Turkish Electricity Transmission Company. As the tool advises not to include low-cost/must-run power plants/units, only the electricity generation of thermal power plants are included. To find out the net thermal electricity generation, the gross thermal electricity generation within Turkey and electricity imports are added.

Ex ante option is chosen, thus the most recent three historical years (2013, 2014 and 2015) data is used. The values are listed in table 9 below.

Table 9 Net electricity generated in Turkish Grid

Year	EG _y (MWh)
2015	179,241,865
2014	208,369,919
2013	186,501,947

The results of the simple OM calculations are below. The details of the data and calculations were provided to the DOE in Emission_Calculations.xls document during the validation process.

Table 10 Summary of Operating Margin factors

	2013	2014	2015
$EF_{Grid,OMsimple,y}$	0.5872	0.5890	0.6097
$EF_{Grid,OMsimple,y}$ (average)	0.5953		

Step 5: Calculate the build margin (BM) emission factor

As per Step 5 of the *Tool to calculate the Emission Factor for an electricity system*, Option 1 has been used to calculate the build margin emission factor that will be valid for the first crediting period. Capacity additions from retrofits of power plants are not be included in the calculation of the build margin emission factor.

The sample group of power units m used to calculate the build margin should be determined as per the following procedure:

- Identify the set of five power units, excluding power units registered as VER project activities, that started to supply electricity to the grid most recently (SET_5 units) and determine their annual electricity generation ($AEG_{SET-5-units}$, in MWh);
- Determine the annual electricity generation of the project electricity system, excluding power units registered as VER project activities (AEG_{total} , in MWh). Identify the set of power units, excluding power units registered as VER project activities, that started to supply electricity to the grid most recently and that comprise 20 per cent of AEG_{total} (if 20 per cent falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) ($SET_{\geq 20 \text{ per cent}}$) and determine their annual electricity generation ($AEG_{SET \geq 20 \text{ per cent}}$, in MWh);
- From SET_5 units and $SET_{\geq 20 \text{ per cent}}$ select the set of power units that comprises the larger annual electricity generation (SET_{sample});

There were not publically available data about the exact commissioning dates of most recently commissioned power plants. However, it can be proved that $SET_{\geq 20 \text{ per cent}}$ power units comprise the larger annual electricity generation than SET_5 units. Thus, it is concluded that SET_{sample} is $SET_{\geq 20 \text{ per cent}}$ power units. The list of power units included in BM calculations is demonstrated in the Appendix 4 of PDD.

The oldest power plant of the sample started to supply electricity to the grid in 2013, which is not more than 10 years, thus SET_{sample} is used to calculate the build margin.

The build margin emissions factor is the generation-weighted average emission factor (tCO_2/MWh) of all power units m during the most recent year 2013 for which electricity generation data is available, and is calculated as follows:

$$EF_{\text{grid, BM, } y} = \frac{\sum_m (EG_{m,y} * EF_{EL,m,y})}{\sum_m EG_{m,y}}$$

Where:

$EF_{\text{grid, BM, } y}$ = Build margin CO_2 emission factor in year y (tCO_2/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 electricity generation data is available.

The CO_2 emission factor of each power unit m ($EF_{EL,m,y}$) is determined with the following formula, as for a power unit m only data on electricity generation and the fuel types used is available:

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} * 3,6}{\eta_{m,y}}$$

Where:

$EF_{EL,m,y}$ = CO_2 emission factor of power unit m in year y (tCO_2/MWh)

$EF_{CO2,m,i,y}$ = Average CO_2 emission factor of fuel type i used in power unit m in year y (tCO_2/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

The EF_{CO_2} for different type of fuels are gathered from 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Average net energy conversion efficiency of specific power units is not provided thus the approximate values for Turkish power plants from Turkish Electricity Generation Company are used. (Table 11)

Table 11 Parameter of each fuel type for BM calculations

Fuel Type	$EF_{CO_2}(tCO_2/GJ)$	η	EF_{EL}
Natural Gas	0.0543	58%	0.3370

The resulting $EF_{grid,BM,y}$ is 0.3159 tCO₂/MWh.

Step 6: Calculate the combined margin emissions factor

After calculation of simple operating margin and build margin emission factors, the combined margin (CM) emission factor ($EF_{grid,CM,y}$) is calculated by using the weighted average CM method.

The combined margin emissions factor is calculated as follows:

$$EF_{grid,CM,y} = (EF_{grid,OM,y} * W_{OM}) + (EF_{grid,BM,y} * W_{BM})$$

Where:

$EF_{grid, BM,y}$ = 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 (%)

It is advised to use $W_{OM} = 0.75$ and $W_{BM} = 0.25$ for wind and solar power generation projects for the first crediting period and for subsequent crediting periods. Thus, the grid emission factor is:

$$EF_{grid,CM,y} = (0.5953 * 0.75) + (0.3159 * 0.25) = \mathbf{0.5255 \text{ tCO}_2/\text{MWh}}.$$

Project Emissions

According to the consolidated methodology ACM0002 Version 16.0.0 "For most renewable power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:"

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y = Project emissions in year y ($\text{tCO}_2\text{e/yr}$)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO_2/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y ($\text{tCO}_2\text{e/yr}$)

$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y ($\text{tCO}_2\text{e/yr}$)

Since the project activity is a renewable energy generation project harnessing wind power, it has no fossil-fuel consumption, doesn't result in water reservoir, or release non-condensable gases.

Consequently;

$$PE_{FF,y} + PE_{GP,y} + PE_{HP,y} = 0;$$

Therefore;

$$PE_y = 0 \text{ tCO}_2\text{e/yr}$$

Baseline emissions are;

$0.5255 \text{ tCO}_2/\text{MWh} \times 110,536 \text{ MWh} = \mathbf{58,082}$ tonnes of CO_2e (22/04/2018-31/12/2018)

$0.5255 \text{ tCO}_2/\text{MWh} \times 146,679 \text{ MWh} = \mathbf{77,073}$ tonnes of CO_2e (01/01/2019-31/12/2019)

$0.5255 \text{ tCO}_2/\text{MWh} \times 166,725 \text{ MWh} = \mathbf{87,607}$ tonnes of CO_2e (01/01/2020-31/12/2020)

$0.5255 \text{ tCO}_2/\text{MWh} \times 45,461 \text{ MWh} = \mathbf{23,888}$ tonnes of CO_2e (01/01/2021-20/04/2021)

E.2. Calculation of project value or estimation of project situation of each SDG Impact

SDG 4 - Quality Education

The project owner provides scholarships for primary/high school and university students in the region. Moreover, project owner has a sailing/swimming school, where local students are trained and are able to compete national and international races. In addition to direct support to local students, project owner also provides monetary and physical support for local schools and villages. The contribution to the SDG is estimated by the number students, who are awarded with scholarship and attended sport club and financial value of the supports provided to the local schools and villages/towns.

During the monitoring period;

- 70 students from Çanakkale region were rewarded with scholarships (22/04/2018 - 31/12/2018)
- 65 students from Çanakkale region were rewarded with scholarships (01/01/2019 - 31/12/2019)
- 47 students from Çanakkale region were rewarded with scholarships (01/01/2020 - 31/12/2020)
- 39 students from Çanakkale region were rewarded with scholarships (01/01/2021 - 20/04/2021)

Regarding the sports clubs;

- 168 teenagers attended swimming and 128 teenagers attended sailing training at İcdaş Sports Club (22/04/2018 - 31/12/2018)
- 137 teenagers attended swimming and 61 teenagers attended sailing training at İcdaş Sports Club (01/01/2019 - 31/12/2019)
- 133 teenagers attended swimming and 58 teenagers attended sailing training at İcdaş Sports Club (01/01/2020 - 31/12/2020)
- 44 teenagers attended swimming and 54 teenagers attended sailing training at İcdaş Sports Club (01/01/2021 - 20/04/2021)

SDG 7 - Affordable and Clean Energy

The contribution of the project to the SDG is measured by the net amount of renewable energy fed into grid by the wind farm.

The amount of net electricity provided into the grid in the monitoring period was:

110,536.44 MWh (22/04/2018 - 31/12/2018)

146,678.90 MWh (01/01/2019 - 31/12/2019)

166,724.90 MWh (01/01/2020 - 31/12/2020)

45,461.28 MWh (01/01/2021 - 20/04/2021)

SDG 8 - Decent Work and Economic Growth

The project owner set priority to hire local people for both construction and operation phase of the project, creating income for local people. During the monitoring period;

- 15 workers were employed at the wind farm (22/04/2018 - 31/12/2018)
- 14 workers were employed at the wind farm (01/01/2019 - 31/12/2019)
- 17 were employed at the wind farm (01/01/2020 - 31/12/2020)
- 17 workers were employed at the wind farm (01/01/2021 - 20/04/2021)

SDG 13: Climate Action

No emission will occur due the project, thus the project value for SDG13 is zero.

E.3. Calculation of leakage

According to the consolidated methodology ACM0002 Version 16.0, "No leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). These emissions sources are neglected."

Therefore, $LE_y = 0 \text{ tCO}_2\text{e/yr}$.

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Emission Reductions	58,082 tonnes of CO ₂ e (22/04/2018-31/12/2018)	- 0 tCO ₂ e (22/04/2018-31/12/2018)	58,082 tonnes of CO ₂ e (22/04/2018-31/12/2018)
		77,073 tonnes of CO ₂ e (01/01/2019-31/12/2019)	- 0 tCO ₂ e (01/01/2019-31/12/2019)	77,073 tonnes of CO ₂ e (01/01/2019-31/12/2019)
		87,607 tonnes of CO ₂ e (01/01/2020-31/12/2020)	- 0 tCO ₂ e (01/01/2020-31/12/2020)	87,607 tonnes of CO ₂ e (01/01/2020-31/12/2020)
		23,888 tonnes of CO ₂ e (01/01/2021-20/04/2021)	(01/01/2021-20/04/2021)	23,888 tonnes of CO ₂ e (01/01/2021-20/04/2021)
4	Number of students receiving quality education	No support for local students and schools/villages/towns	- 70/65/47/39 students rewarded with scholarships for each year (22/04/2018 - 20/04/2021) - 296/198/191/98 students trained at the ICDAÇ Sport Club for each year (22/04/2018 - 20/04/2021)	- 70/65/47/39 students rewarded with scholarships for each year (22/04/2018 - 20/04/2021) 296/198/191/98 students trained at the ICDAÇ Sport Club for each year (22/04/2018 - 20/04/2021)
7	MWh of renewable energy generated	No electricity is fed to the national grid	110,536.44 MWh (22/04/2018 - 31/12/2018) 146,678.90 MWh (01/01/2019 - 31/12/2019)	110,536.44 MWh (22/04/2018 - 31/12/2018) 146,678.90 MWh (01/01/2019 - 31/12/2019)

		166,724.90 MWh (01/01/2020 - 31/12/2020)	166,724.90 MWh (01/01/2020 - 31/12/2020)
		45,461.28 MWh (01/01/2021 - 20/04/2021)	45,461.28 MWh (01/01/2021 - 20/04/2021)
8	Number of people hired No employment	15/14/17/17 workers were employed at the wind farm each year (22/04/2018 - 20/04/2021)	15/14/17/17 workers were employed at the wind farm each year (22/04/2018 - 20/04/2021)

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values ¹ achieved during this monitoring period
13	- 61,500 tCO₂e (22/04/2018-31/12/2018) - 88,378 tCO₂e (01/01/2019-31/12/2019) - 88,378 tCO₂e (01/01/2020-31/12/2020) - 26,634 tCO₂e (01/01/2021-20/04/2021)	58,082 tonnes of CO₂e (22/04/2018-31/12/2018) 77,073 tonnes of CO₂e (01/01/2019-31/12/2019) 87,607 tonnes of CO₂e (01/01/2020-31/12/2020) 23,888 tonnes of CO₂e (01/01/2021-20/04/2021)
4	monthly scholarship for 8 local students / 40 local teenager trained at sailing and swimming school for each year.	- 70/65/47/39 students rewarded with scholarships for each year (22/04/2018 - 20/04/2021)

¹ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

		- 296/198/191/98 students trained at the ICDAÇ Sport Club for each year (22/04/2018 - 20/04/2021)
	- 117,043.20 MWh (22/04/2018-31/12/2018)	110,536.44 MWh (22/04/2018 - 31/12/2018)
	- 168,192.00 MWh (01/01/2019-31/12/2019)	146,678.90 MWh (01/01/2019 - 31/12/2019)
7	- 168,192.00 MWh (01/01/2020-31/12/2020)	166,724.90 MWh (01/01/2020 - 31/12/2020)
	- 50,688.00 MWh (01/01/2021-20/04/2021)	45,461.28 MWh (01/01/2021 - 20/04/2021)
	13 workers hired for the operation for each year.	- 15 workers employed between 22/04/2018 - 31/12/2018
		- 14 workers employed between 01/01/2019 - 31/12/2019
8		- 17 workers employed between 01/01/2020 - 31/12/2020
		- 17 workers employed between 01/01/2021 - 20/04/2021

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

The total value estimated in ex ante calculation for **SDG13** is **264,890** tCO₂e.

The total value estimated in ex ante calculation for **SDG4** is **8 local students / 40 local teenager** trained at sailing and swimming school for each year (32 students and 160 teenagers for the whole monitoring period. However, students can be the same or others every following year).

The total value estimated in ex ante calculation for **SDG7** is **504,115.20** MWh.

The total value estimated in ex ante calculation for **SDG8** is **13** workers (40 local people for construction is not valid because the construction phase is already completed before this monitoring period).

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

The achieved value for **SDG 13** is **6.89% lower** than the estimated value in the approved PDD because of the lower renewable energy generation.

The estimated values in approved PDD for **SDG 4** are met for every year in the monitoring period. From 39 to 70 students were rewarded with scholarships and which is more than **four times** higher expected value. Moreover, from 98 to 296 students trained at the ICDAÇ Sports Club during the monitoring period which is more than **double** the estimated value.

The achieved value for **SDG 7** is **6.89% lower** than the estimated value in the approved PDD due to the natural causes.

The estimated values in approved PDD for **SDG 8** are met for every year in the monitoring period. **4 more job opportunities** created compared to the estimated values.

SECTION F. SAFEGUARDS REPORTING

Regarding the Safeguarding Principle 9.10 - High Conservation Value Areas and Critical Habitats, the project owner monitors the number of affected birds and mammals due to the project activity.

The Directorate of Nature Conservation and National Parks (DNCNP) requested the project owner to monitor the project site at bird migration periods for two years with submission of monitoring report for every three months. After the assessment of 1st, 2nd, and 3rd reports, DNCNP stated the project owner could submit the monitoring report twice a year with the monitoring periods of 15 days in spring, autumn, and winter.

During 2016 and 2017, ornithologist Ass. Prof. Aziz Aslan, zoologist Mustafa Yavuz and biologist Sümeyra Çakır carried out the site monitoring activities and prepared two monitoring reports and in November 2017 a general evaluation report about impacts of the project to the wildlife as DNCNP requested.

The reports and evaluations states that,

- There are 165 bird types are identified around the project area,
- The project site is on the main bird migration road, but it does not create a bottleneck.
- Migration activities start in February at spring and the fall migration period starts with August and ends with October.
- There are some bird species that come to spend the winter and leave around springtime. These bird types do not interact with wind turbines.
- Species like pelican, stork, birds of prey, bee eater flies at high altitudes and do not interact with turbines.
- The area is within the breeding region of two endangered species (turtle dove and Coracias) but the turbines do not affect these activities.
- Stork and white pelican species used to fly more frequently over the project area before the installation and they reduced their activities after the installation. It is also stated that there is enough space for these birds to go through the region.

- It is concluded that the wind farm activities do not create a significant risk to the bird migration and breeding activities.

As a result of the above evaluations, DNCNP agreed to terminate the scientific monitoring process. However, it is requested to check the perimeter of the turbines for nests and dead bodies during the breeding period (1 April – 15 August) and during the spring and autumn migration periods at least once a week. If any nest or dead birds are observed, it is requested to report to DNCNP.

After the final evaluation of DNCNP, the project owner carried out observation activities as requested periods and kept records of the observations. The project area was observed during the migration periods. The number of effected animals during each monitoring period are;

- No harmed animal was identified due to the project activity for the migration period April 2018 and October2018
- During the migration period March 2019 and October2019, a dead weasel found on 08.03.2019 on the side of the road because the wind farm site roads were used by the villagers to reach their villages.
- During the migration period March 2020 and October2020, two dead birds were found away from the turbines on 28.08.2020 and 10.09.2020. Considering their wounds and location of the carcasses, they were assumed to be hit by vehicles.
- No harmed animal was identified due to the project.

In addition to commitments of project owner to DNCNP, project owner assembles a biodiversity report every year to keep records of the new and existing species in the region.

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

According to Gold Standard continuous input / grievance mechanism rules, the request and complaints from the local stakeholders are considered during the monitoring period. As agreed at the local stakeholder meeting, the Continuous Input / Grievance Expression Process Book are located at the Headman's offices in neighbour villages (Örtülüce, Çakırlı, Değirmencik, Aksaz and Kemer). In addition to the Continuous Input / Grievance Expression Process Book, the contact person details of İçdaş are also available. The Headmen of the villages provide regular feedbacks on the continuous inputs and grievance expression. Each request is evaluated by the project owner and feedback is provided to the stakeholders. If the request/grievance cannot be considered/solved, the underlying reasons are explained.

During this monitoring period, a request from Aksaz village was raised. The villagers requested the project owner to clean inner side of the fishing port at the Aksaz village in 10.10.2020. The project owner accepted the request and got the fishing port cleaned. No other inputs/grievances have been received during the monitoring period from other stakeholders. The Continuous Input / Grievance Expression Process Books at Örtülüce, Çakırlı, Değirmencik, Aksaz and Kemer are provided to DOE for verification.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

No inputs/grievances from previous monitoring period requires follow up action.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

No legal contest or dispute has arisen with the project during the monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption