

 Monitoring report form for CDM project activity (Version 06.0)		
Complete this form in accordance with the instructions attached at the end of this form.		
MONITORING REPORT		
Title of the project activity	Yuntdağ Wind Power Project, Turkey	
UNFCCC reference number of the project activity	GS 352	
Version number of the PDD applicable to this monitoring report	9	
Version number of this monitoring report	3	
Completion date of this monitoring report	06/08/2018	
Monitoring period number	2	
Duration of this monitoring period	01/04/2017- 30/04/2018	
Monitoring report number for this monitoring report	-	
Project participants	Innores Elektrik Üretim A.Ş.	
Host Party	Turkey	
Sectoral scopes	Energy industries (renewable -/non-renewable sources)	
Applied methodologies and standardized baselines	ACM0002 version 16.0, "Large-scale Consolidated baseline methodology for grid-connected electricity generation from renewable sources"	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	-	111,459 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	121,835 tCO ₂ e	

SECTION A. Description of project activity

A.1. General description of project activity

Innores Elektrik Üretim AŞ (in the following: Innores) installed and commissioned a 42.5 MW wind power plant in Yuntdağ/Bergama/İzmir in Turkey in 2008. Initial project capacity was 42.5 MW consisting of 17 turbines with 2.5 MW each, which was planned to be increased by 15 MW in 2011 with a revised license for 57.5 MW which was granted by EMRA to Innores on 09/06/2010. Finally, capacity is increased of 2,5 MW with an additional turbine. Revised licence for 60.0 MW is granted by EMRA to Innores on 24/05/2013.

The increased capacity was also registered under Gold Standard for consideration of emission reduction on 11th of May 2015. Yuntdağ WPP including additional capacity is consisted of 24 wind turbines Nordex N90 of the 2.5 MW output, 90m in diameter and 80m hub height. The wind turbines connected to the wind farm substation through 34.5 kV underground cables. The voltage is raised to 154 kV and is transferred to the National Electricity System (Alosbi Transformer Station) via a 26 km long transmission line for 60.0 MW installed capacity.

2nd crediting period of Yuntdağ WPP started on 21/03/2016 and the crediting period is 7 years which will end on 20/03/2023. The expected yearly net electricity generation is 203,900 MWh which leads to emission reductions of 788,074 tCO₂e over the period of 7 years. In this monitoring period, 111,459 tCO₂e emission reduction has achieved.

The purpose of the project is to generate electricity and to feed it into the public grid. Yuntdağ WPP was registered as a Voluntary Emission Reduction project in order to enable the project implementation by means of financial inflows coming from the credits sale. Because of its significant contribution to climate protection and to sustainable development in the region, this project fulfills the requirements of the Gold Standard Organization.

The project installation is completed according to the description in the PDD and completely operational. The project consists only one site. The most important milestones are included in the following table:

Table 1: Milestones of the project

Date	Milestone
25/07/2007	Initial Stakeholder Consultation in Koyuneli Village
07/03/2008	Commissioning of the first 6 turbines: Start of the first crediting period and first monitoring period
18/03/2008	Final Validation Report
04/06/2008	Commissioning of 11 Turbines.
31/07/2008	Gold Standard Registration
30/04/2009	End of the first monitoring period
31/03/2010	End of the second monitoring period
09/06/2010	License granted by EMRA for capacity extension (for 57.5 MW)
31/12/2010	End of the third monitoring period
01/04/2011	Start date of construction for capacity extension
13/07/2011	Registration of capacity extension under Gold Standard
27/09/2011	Commissioning of 4 turbines which is belongs to capacity extension
31/12/2011	End of fourth monitoring period
18/01/2012	Date of the commissioning of 2 Turbines
31/12/2012	End of fifth monitoring period
24/05/2013	License granted by EMRA for capacity extension (for 60.0 MW)

05/12/2013	Date of replacement of the meters due to failure of both meters
31/12/2013	End of sixth Monitoring period
29/01/2014	Commissioning of 1 turbine which belongs to capacity extension
06/03/2015	End of the seventh Monitoring period
07/08/2015	Registration of capacity extension under Gold Standard
21/03/2016	Start date of the second crediting period
30/03/2017	End of the first monitoring period of the second crediting period
01/04/2017	Start date of the second monitoring period of the second crediting period
30/04/2018	End of the second monitoring period of the second crediting period

A.2. Location of project activity

The Project located near Koyuneli village of Bergama district in İzmir, Turkey. The site is located on two ridgelines at the elevation between 490m and 530m.

Location of the project site is presented on the Picture 1.



Picture 1: Map of the project area

The coordinates of the turbines are given below. Yuntdag WPP including additional capacity consisting of 24 wind turbines Nordex N90 of the 2.5 MW output, 90m in diameter and 80m hub height. The project coordinates were provided below which are under ED 50, zone 35 coordinate system.

Table 2: Coordinates of the Turbines

Turbine	East	North
---------	------	-------

T01	516633	4313956
T02	516615	4313686
T03	516642	4313426
T04	516697	4313168
T05	516744	4312913
T06	516757	4312647
T07	516772	4312347
T08	516786	4312100
T09	516846	4311849
T10	516854	4311595
T11	516936	431349
T12	517036	4311122
T13	515532	4311741
T14	515563	4311485
T15	515585	4311081
T16	515533	4310674
T17	515431	4310288
T18	516495	4311954
T19	515390	4311545
T20	516120	4311545
T21	516410	4311460
T22	515318	4309878
T23	515573	4309771
T24	517209	4311030

A.3. Parties and project participants

Parties involved	Project participants	Indicate whether the Party involved wishes to be considered as project participant (yes/no)
Turkey (host)	Innores Elektrik Uretim A.Ş. (private entity)	No

A.4. Reference of applied methodology and standardized baseline

For the determination of the baseline, the official methodology ACM0002 version 16.0, "Large-scale Consolidated baseline methodology for grid-connected electricity generation from renewable sources"¹, is applied, using conservative options and data as presented in the following section. This methodology refers to four Tools, which are:

1. Tool to calculate the emission factor for an electricity system (Version 04.0.0)²;
2. Tool for the demonstration and assessment of additionality (Version 07.0.0)³;
3. Combined tool to identify the baseline scenario and demonstrate additionality (version 06.0.0)⁴
4. Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion (Version 02.0.0)⁵
5. Tool to determine the remaining lifetime of the equipment⁶
6. Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (version 03.0.1)⁷

For baseline calculation the first tool, for additionality assessment the second tool is used. As third tool is the combination of the first and second tool, it is not used. Since no project emission or leakage calculation is required for wind power project fourth tool is not used, either. To determine the remaining lifetime of the equipment fifth tool is used. And for the renewal of the crediting period, the sixth tool is used.

A.5. Crediting period type and duration

21/03/2016- 20/03/2023 (Crediting period of the project is 7 years which is twice renewable.)

SECTION B. Implementation of project activity**B.1. Description of implemented project activity**

The project consists of the 24 wind turbines that are connected to the grid via a 26 km transmission line. Yuntdağ WPP including additional capacity is consisted of 24 wind turbines Nordex N90 of the

¹<https://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83>

² See; <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf>

³ See; <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

⁴ See; <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v5.0.0.pdf>

⁵ See; <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf>

⁶ See; <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf>

⁷ See; <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>

2.5 MW output, 90m in diameter and 80m hub height. The wind turbines connected to the wind farm substation through 34.5 kV underground cables. The voltage is raised to 154 kV and is transferred to the National Electricity System (Alosbi Transformer Station) via a 26 km long transmission line for 60.0 MW installed capacity. The wind power project does not comprise any emission sources.

The project spatial extend of Yunttag WPP is the project power plant and all power plants connected physically to the electricity system which is discussed and applied with calculation of combined margin in accordance of "Tool to calculate the emission factor for an electricity system"

The project uses wind energy to produce electricity. Kinetic power of the wind is converted to electrical energy, which then will be transferred to the grid. Back-up power generators in the wind farm will only be used when the wind farm is out of service and power cannot be supplied from grid. Hence, emissions due to usage of back-up power generation are expected to be very low and are taken to be zero complying with the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion "(v.2).

A general operation diagram of the project is given in Figure 1.

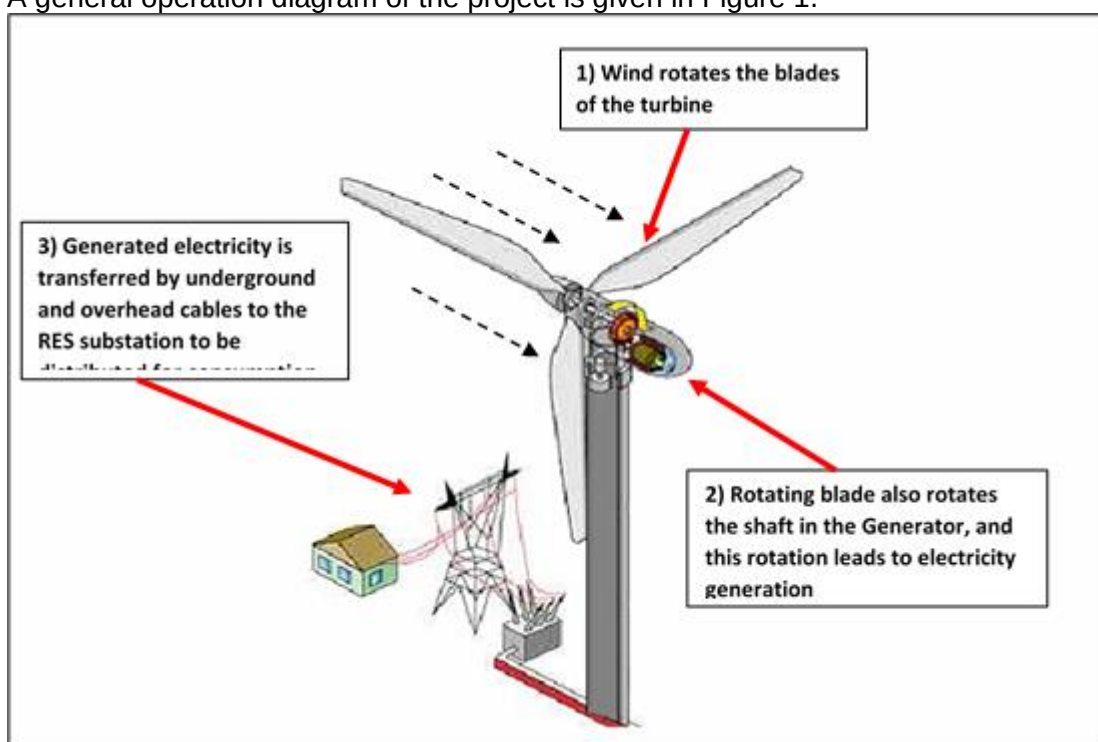


Figure 1: Operation diagram of the project

B.2. Post-registration changes

B.2.1. Temporary deviations from registered monitoring plan, applied methodologies or applied standardized baseline

There is no revision in the monitoring plan of the project.

B.2.2. Corrections

There is no corrections.

B.2.3. Changes to start date of crediting period

The start date of crediting period has been revised according to crediting period renewal.

B.2.4. Inclusion of a monitoring plan

None

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools

None

B.2.6. Changes to project design

None

SECTION C. Description of monitoring system

The second crediting period starts according to crediting period renewal starting on 21/03/2016. As the crediting period is to start in March 2016, the estimated emission reductions from the first and last year of the crediting period sum up to the amount of the estimated yearly reductions.

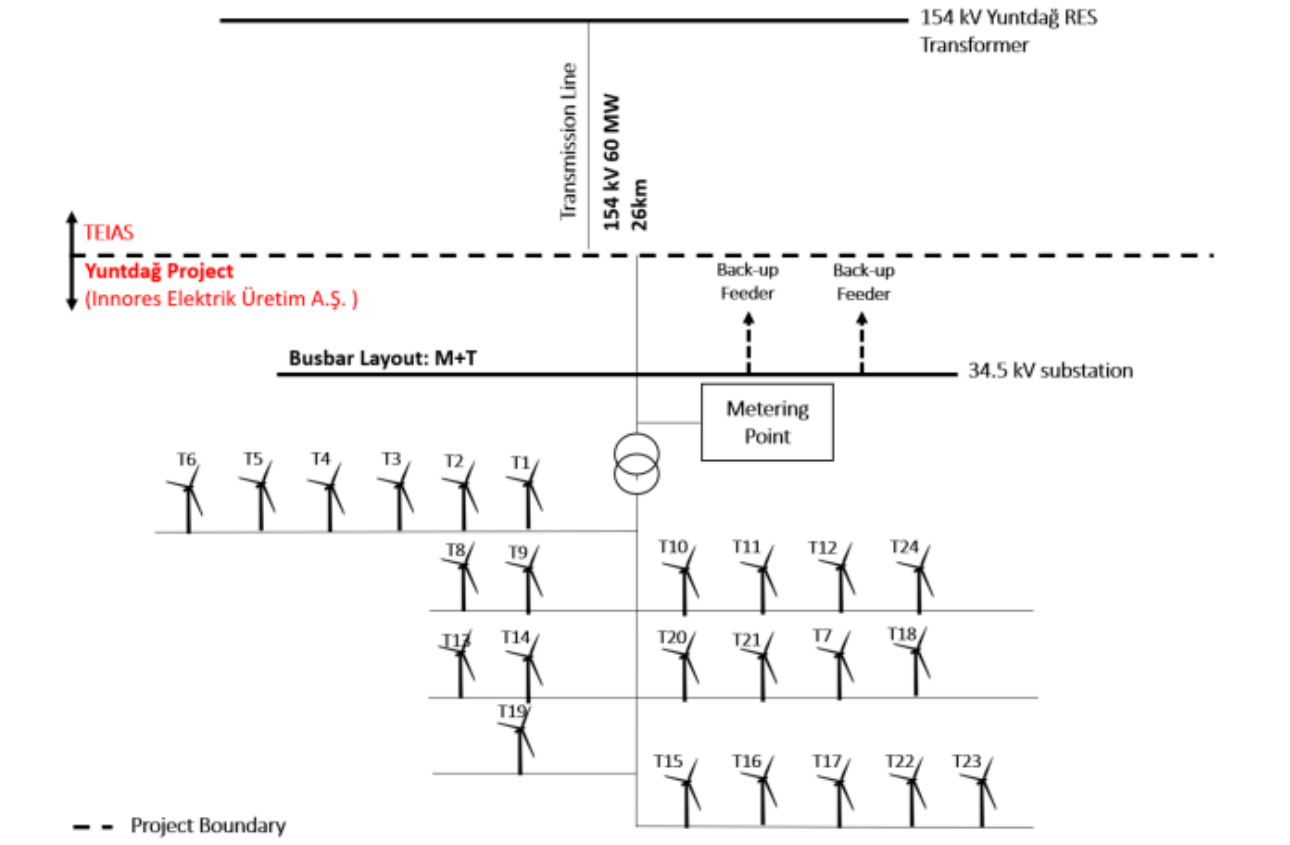


Figure 2: Line diagram

C.1 Data Processing and Archiving

C.1.1. Data Processing

Data handling was slightly revised due to innovation in technology that enables TEİAŞ to read meters remotely. Thus, under this process, the meter is read remotely at the end of every month and published through website of TEİAŞ which can be accessed by project owner to check the correctness of the data. Besides, project owner carries monthly protocol to cross-check the data. By this way a cross check is done. Once the meter data is correct then the amount is also published in PMUM website which is also accessible by project owner. When all data is correct, an invoice (receipt of sale) is prepared by Innores and delivered to TEİAŞ. The electricity generation amount, the collected data, are kept in both hardcopy and softcopy in daily and monthly basis indefinitely. Moreover, these data are submitted to several authorized people. Thus, several additional copies of these data are stored at different computers. The collected data during the monitoring period will be kept by the project owner at least two years after the last issuance of VERs.

As the necessary baseline emission factors are all defined ex ante, the only information to be monitored is the amount of electricity fed into the grid by Yuntdağ WPP. The data which is base for the invoices and published in PMUM website is used as input for emission reduction calculation. Electricity transfer from turbine to transmission line can be seen in Figure 2. SCADA system and remote control of meters can be seen from the picture and monitoring system can be visualised.

Note: On 01/09/2015, PMUM was renamed as EPIAŞ.

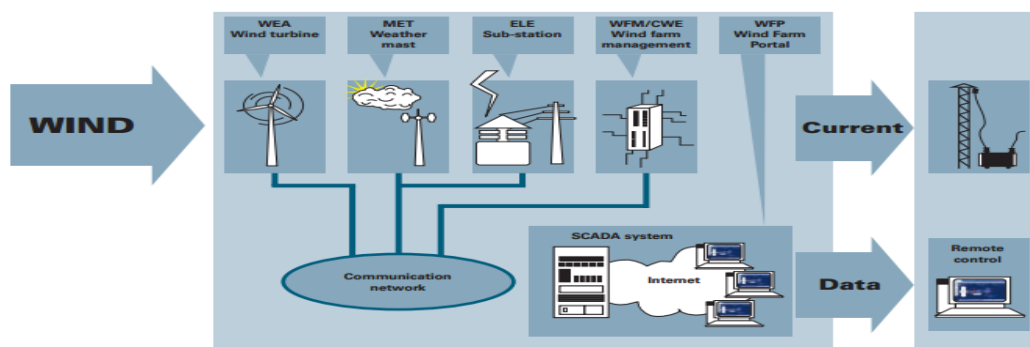


Figure 3: Electricity transmission from turbine to transmission line

C.1.2. A Backup Unit for Systematic Storage

The fact that two reliable best practice meters are installed in a redundant manner keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is not only in the interest of the emission reduction monitoring, but paramount for the business relation between the plant operator and the electricity buyer. Since the meters are reading electricity supplied to the system and withdrawn from the system separately, the net electricity amount supplied to the grid will be calculated by electricity supplied minus electricity withdrawn which will be taken from monthly settlement notifications.

Monthly data from TEIAS are stored electronically on TEIAS website and this data can be accessed by login of Project Developer. Innorecs also stores a hardcopy of the monthly meter reading protocols for back up of systematic storage of data.

Moreover, there are always internal reviews of the meters data which is checked by different parties. First of all, data of the meters is collected by technicians daily in written forms. The data collected daily is saved in plant manager computer and backed up and shared by headquarter of Innorecs in Istanbul. Besides the data that can be get from meters, production amount can be checked from SCADA system of Nordex. SCADA figures differ a bit with meter data due to internal losses.

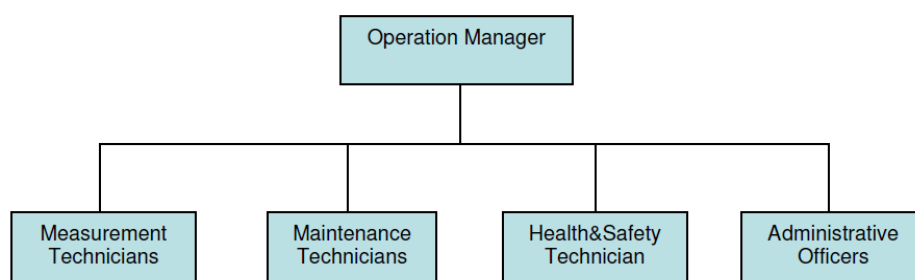


Figure 4: Operation and management diagram

C.1.3 Calibration Procedures:

The calibration of the monitoring equipment was carried out according to the information provided in the GS-VER PDD. The GS-VER PDD mainly includes the following obligation for the calibration of the appropriate meters:

“The Turkish Electricity Market Regulation Agency (EPDK) sets rules on the accuracy of electricity meters that are used by power plants feeding into the grid. The rules are part of the EPDK regulation 25056 from 22 March 2003. The table in Article 11 of the regulation specifies the use of

electricity meters of the accuracy class 0.5S for power plants between 10 MW and 100 MW and refers to compliance with International Electro technical Commission's norm EN 60687. TEİAŞ conducts remote reading. And operative manager, employee of Innore Enerji, conducts reading from the project site and sends to TEİAŞ. By this way, a cross-check is done. Also, with the readings from project site, continuously these two meters are compared with each other and if any differences are detected the necessary control measures are taken.

Table 3: Specification of the electricity meters

Name	Serial Number	Brand –Model	Year of Manufacture
Main Meter	4364955	EMH –LZQ-XC	2013
Backup meter	4364956	EMH –LZQ-XC	2013

First calibration date: 03/12/2013, Installation Date of the meters: 05/12/2013

C.1.4. Troubleshooting Procedures

As the measuring devices are sealed by TEİAŞ, Innore cannot intervene with the devices. In case of unforeseen problems or failures of the meters or if any differences occur between primary and secondary devices TEİAŞ has to be informed for necessary maintenance and calibration. There is an agreement between Innore and TEİAŞ that in case of problems or failures of the meters TEİAŞ reacts as fast as possible to solve the problem.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data / Parameter	EG _y
Unit	MWh
Description	Net electricity generated by power plant/unit m, k or n (or in the project electricity system in case of EG _y) in year y or hour h
Source of data	Turkish Electricity Transmission Company (TEİAŞ), Annual Development of Electricity Generation- Consumption and Losses in Turkey (1984-2014) TEİAŞ, see http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2014/istatistik2014.htm (excel file number 35, 38, 28 are used for the calculation of the net electricity generated by relevant sources)
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. Thus, for reliability, TEİAŞ data is used. Net electricity generation is calculated using gross and net production for all fuel types. This data is used to find relation between the gross and net electricity delivered to the grid by fossil fuel fired power plants (Error! Reference source not found.) Also, gross and net electricity production for related fuel types and Import and Export data are used to find total net electricity fed into the grid in the years of 2012, 2013 and 2014.
Purpose of data	Data used for emission reduction calculation
Additional comment	

Data / Parameter	HVi,y
------------------	-------

Unit	Mass or volume unit
Description	Heating Values of fuels consumed for electricity generation in the years of 2012, 2013 and 2014
Source of data	Heating Values Of Fuels Consumed In Thermal Power Plants In Turkey By The Electric Utilities, TEİAŞ. See: http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2014/istatistik2014.htm (excel file 52)
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey. There is no national NVC data in Turkey. However, TEİAŞ announces Heating values of fuels. This data is used to calculate annual NCVs for each fuel type.
Purpose of data	Data used for emission reduction calculation
Additional comment	

Data / Parameter	FC_{i,y}
Unit	Mass or volume unit
Description	Amount of fuel type i consumed in the project electricity system in year y
Source of data	Annual Development of Fuels Consumed In Thermal Power Plants In Turkey by The Electric Utilities, TEİAŞ. See: http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2014/istatistik2014.htm (excel file 50)
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey.
Purpose of data	Data used for emission reduction calculation
Additional comment	

Data / Parameter	NCV_{i,y}
Unit	GJ/mass or volume unit
Description	Net Calorific Value of fuel types in the years of 2012, 2013 and 2014
Source of data	Calculated by using HVi,y to FC _{i,y} as Net Calorific Values of fuel types are not directly available in Turkey.
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	TEİAŞ is the national electricity transmission company, which makes available the official data of power plants in Turkey. Calculation of NCVs from national HVi,y and FC _{i,y} data is preferred to default IPCC data as these are more reliable.
Purpose of data	Data used for emission reduction calculation
Additional comment	

Data / Parameter	Sample Group for BM emission factor
Unit	Name of the plants, MW capacities, fuel types, annual electricity generations and dates of commissioning.
Description	Most recent power plants which compromise 20% of total generation

Source of data	Annual Development Of Fuels Consumed In Thermal Power Plants In Turkey By The Electric Utilities, TEIAS: http://www.teias.gov.tr/YayinRapor/APK/projeksiyon/KAPASITEPROJ EKSİYONU2011.pdf http://www.teias.gov.tr/YayinRapor/APK/projeksiyon/KAPASITEPROJ EKSİYONU2012.pdf http://www.teias.gov.tr/YayinRapor/APK/projeksiyon/KAPASITEPROJ EKSİYONU2013.pdf
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	TEIAS is the national electricity transmission company, which makes available the official data of all power plants in Turkey. The latest data available during PDD preparation was for 2012 please find information as: http://www.teias.gov.tr/KAPASITEPROJEKSİYONU2012.pdf
Purpose of data	Data used for emission reduction calculation
Additional comment	

Data / Parameter	EF_{CO₂,i,y}
Unit	tCO₂/GJ
Description	CO ₂ emission factor of fuel type i in year y
Source of data	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 IPCC Guidelines on National GHG Inventories. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction .pdf
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	No plant specific and national emission factor data is available in Turkey. So, IPCC default data is used.
Purpose of data	Data used for emission reduction calculation
Additional comment	

Data / Parameter	η_{m,y}
Unit	-
Description	Average energy conversion efficiency of power unit m in year y
Source of data	Annex I the "Tool to calculate the emission factor for an electricity system"(v.4)
Value(s) applied	Please see registered PDD.
Choice of data or Measurement methods and procedures	For efficiency rates of Coal and Lignite Power Plants See Annex-1 of the Tool (highest rate is applied to be conservative) For Natural Gas and Oil plants efficiencies, default value given in the tool is applied: http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.pdf
Purpose of data	Data used for emission reduction calculation

Additional comment

D.2. Data and parameters monitored

Data / Parameter:	Net Electricity Production (GEN_y)																		
Unit:	MWh																		
Description:	Net electricity delivered to the grid.																		
Measured/ Calculated / Default:	Measured																		
Source of data:	Electricity Meter																		
Value(s) of monitored parameter:	201,882 MWh <table border="1" style="margin-top: 10px;"> <thead> <tr> <th></th><th>Electricity supplied to the grid (MWh) (1)</th><th>Electricity consumption from the grid (MWh) (2)</th><th>Net electricity supplied to the grid[MWh] (3) =(1)-(2)</th></tr> </thead> <tbody> <tr> <td>21.03.2016-31.03.2017</td><td>237,251</td><td>244,78</td><td>237,006</td></tr> <tr> <td>01.04.2017-30.04.2018</td><td>202,169</td><td>287,913</td><td>201,882</td></tr> </tbody> </table>					Electricity supplied to the grid (MWh) (1)	Electricity consumption from the grid (MWh) (2)	Net electricity supplied to the grid[MWh] (3) =(1)-(2)	21.03.2016-31.03.2017	237,251	244,78	237,006	01.04.2017-30.04.2018	202,169	287,913	201,882			
	Electricity supplied to the grid (MWh) (1)	Electricity consumption from the grid (MWh) (2)	Net electricity supplied to the grid[MWh] (3) =(1)-(2)																
21.03.2016-31.03.2017	237,251	244,78	237,006																
01.04.2017-30.04.2018	202,169	287,913	201,882																
Monitoring equipment:	The specification of old and new electricity meters are provided below: <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Name</th><th>Serial Number</th><th>Brand –Model</th><th>Date Of Calibration</th><th>Year of Manufacture</th></tr> </thead> <tbody> <tr> <td>Main Meter</td><td>4364955</td><td>EMH –LZQ-XC</td><td>29/04/2018</td><td>2013</td></tr> <tr> <td>Backup meter</td><td>4364956</td><td>EMH –LZQ-XC</td><td>29/04/2018</td><td>2013</td></tr> </tbody> </table> Installation Date:05/12/2013 Accuracy class: 0.5S⁸, Reactive 2				Name	Serial Number	Brand –Model	Date Of Calibration	Year of Manufacture	Main Meter	4364955	EMH –LZQ-XC	29/04/2018	2013	Backup meter	4364956	EMH –LZQ-XC	29/04/2018	2013
Name	Serial Number	Brand –Model	Date Of Calibration	Year of Manufacture															
Main Meter	4364955	EMH –LZQ-XC	29/04/2018	2013															
Backup meter	4364956	EMH –LZQ-XC	29/04/2018	2013															
Measuring/ Reading/ Recording frequency:	Continuously																		
Calculation method (if applicable):	-																		

⁸ Calibration sheets

QA/QC procedures:	The calibration of the monitoring equipment was carried out according to the information provided in the GS-VER PDD. The GS-VER PDD mainly includes the following obligation for the calibration of the appropriate meters: “The Turkish Electricity Market Regulation Agency (EPDK) sets rules on the accuracy of electricity meters that are used by power plants feeding into the grid. The rules are part of the EPDK regulation 25056 from 22 March 2003. The table in Article 11 of the regulation specifies the use of electricity meters of the accuracy class 0.5S for power plants between 10 MW and 100 MW and refers to compliance with International Electro technical Commission’s norm EN 60687. Technicians, employees of Innores Enerji, conduct readings from two meters from the project site and sends it to TEİAŞ. By this way, a cross-check is done. Moreover, continuously these two meters are compared with each other and if any differences are detected the necessary control measures are taken. According to the Article 2 of the Communiqué : ‘The meters to be used in the electricity market shall be compliant with the standards of Turkish Standards Institute or IEC and have obtained “Type and System Approval” certificate from the Ministry of Trade and Industry.’ Therefore, Ministry of Trade and Industry (Ministry) is responsible from control and calibration of the meters. paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems' 7 (Regulation) of Ministry states that: ‘ b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 10 years’⁹. Therefore periodic calibration of the meters will be done every 10 years.
Purpose of data:	Calculation of emission reduction of the project
Additional comment:	This monitoring period is between 01/04/2017-30/04/2018. Therefore, this period represents the electricity generation for 395 days.

D.3. Implementation of sampling plan

N/A

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

Used Formulas:

The total emission reductions can be calculated with the results of the below described equations. The emission reduction is equal to the baseline emissions minus project emissions and leakage emissions. Leakage emissions in this project are considered to be negligible. There are no project emissions in this kind of project. The general equation is as follows:

$$ER_y = BE_y - PE_y - L_y \quad (1)$$

Where:

ER_y = Emission reduction
 BE_y = Baseline emissions
 PE_y = Project emissions
 L_y = Leakage
 y = Refers to a given period

⁹ See, http://www.sanayi.gov.tr/download/osgm/olcu_aletleri_muayene_yonetmelik.zip , page 2

The electricity meters are measuring two parameters: The electricity supplied to the grid (EGexport) and the electricity consumption from the grid (EGimport). To achieve the net amount of supplied electricity, the difference has to be calculated:

$$GEN_y = EG_{export} - EG_{import} \quad (2)$$

Where:

GEN_y = Net electricity supplied to the Grid in MWh

EG_{export} = Electricity supplied to the Grid in MWh

EG_{import} = Electricity consumption from the Grid in MWh

According to the applied methodology version the emission reduction is the baseline emissions calculated as the net electricity supplied to the grid multiplied by the grid emission factor.

$$BE_y = GEN_y * EF \quad (3)$$

Where:

BE_y = Baseline emissions in tonnes CO₂e

EF = Grid emission factor for the electricity displaced due to the project activity during the year y [tCO₂e/MWh].

GEN_y = Net electricity supplied to the Grid in MWh (ID 1)

y = Refers to a given period

E.2. Calculation of project emissions or actual net removals

There are no project emissions in this kind of project.

E.3. Calculation of leakage emissions

No leakage needs to be considered.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Apr.17	4,564.37	0	0	0	4,564.37	4,564.37
May.17	7,880.36	0	0	0	7,880.36	7,880.36
Jun.17	5,067.72	0	0	0	5,067.72	5,067.72
Jul.17	15,658.14	0	0	0	15,658.14	15,658.14
Aug.17	18,453.33	0	0	0	18,453.33	18,453.33
Sep.17	6,222.61	0	0	0	6,222.61	6,222.61
Oct.17	9,861.28	0	0	0	9,861.28	9,861.28
Nov.17	4,201.18	0	0	0	4,201.18	4,201.18
Dec.17	9,298.04	0	0	0	9,298.04	9,298.04
Sum 2017	81,207.04	0	0	0	81,207.04	81,207.04
Jan. 18	9,136.02	0	0	0	9,136.02	9,136.02
Feb. 18	7,122.08	0	0	0	7,122.08	7,122.08
Mar.18	7,792.13	0	0	0	7,792.13	7,792.13
Apr.18	6,201.80	0	0	0	6,201.80	6,201.80
Sum 2018	30,252.03	0	0	0	30,252.03	30,252.03

E.5. Comparison of actual emission reductions or net GHG removals by sinks with estimates in registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante (t CO ₂ e)
111,459 CO ₂	121,835 CO ₂

E.6. Remarks on increase in achieved emission reductions

Estimated emission reduction in ex ante calculation of registered PDD is 112,582 CO₂, which corresponds to 121,835 CO₂ for 395 days. And actual emission reduction achieved during this monitoring period is 111,459 CO₂ (for 01/04/2017-30/04/2018, 395 days).

Vintage		n of days	actual E _{Ry} (tCO ₂ e)	estimated E _{Ry} (tCO ₂ e)	% by year
1.04.2017	31.12.2017	275	81,207	84,822	-4%
1.01.2018	30.04.2018	120	30,252	37,013	-22%

When it is compared, 2018 value is smaller. For the whole period, actual emission reduction (achieved during this monitoring period) is 9% smaller than the estimated. This difference may occur due to the less wind than expected.

SECTION F. Sustainable Monitoring Report

According to the requirements of Gold Standard, the project activity must be assessed against a matrix of sustainable development indicators. Project activity's contribution to sustainable development is based on indicators of;

- environmental sustainability,
- social sustainability & development
- economic & technological development

For the first verification period of the second crediting period, five indicators were added to the monitoring report in line with PDD.

During the first verification period, the indicators as "local job creation" and "bird collusion" are presented in the report to show the continuation positive impact of the project for local people. All documents related with the indicators were presented to DOE.

F.1. Sustainable Development Indicators that have to be monitored

F.1.1: Monitored Sustainable Development Indicators

Table 4: Monitored Indicators

Sustainable Development Indicators	Data Variable	Measured (m), calculated (c), or estimated (e)	Rationale
Water quality and quantity	Amount of wastewater transferred by sewage trucks	m	The letter from plant manager is provided.
Air quality (emissions other than GHGs)	Amount of avoided CO and NMVOC	c	Besides Greenhouse Gases, all other air pollutants, particle and VOC emissions generally connected to fossil fuelled electricity generation are avoided by the use of wind power. Amount of avoided CO and NMVOC is calculated. Due to avoidance of fossil fuel combustion, these emissions will be reduced in parallel to reduced CO ₂ .
Soil condition	Waste collection	m	The letter from the municipality for the waste collection is provided.
Biodiversity	Number of observed bird strikes	m	Ornithology report which indicates there is not any bird strikes caused by wind turbines in the wind farm, is provided to verification team. Bird strikes are monitored and feedbacks are collected on a yearly basis. Muhtar's written statement indicating no observation of bird strikes is also provided to the verification team.
Quality of employment (including job quality, fulfilment of	Training records for all employees	m	Although the staff working in the project was mainly trained for new technology during previous crediting period, there were new trainings for the plant staff during the first verification period of the second crediting period.

labour standards)			(see Error! Reference source not found.).
Human and institutional capacity (including empowerment, education, involvement, gender)	Training records for local employees	m	Trainings given to the plant staff is shown in Error! Reference source not found.. These trainings include first aid training, occupational health and safety and new technology trainings.
Quantitative Employment (numbers)	Number of employees	m	The direct creation of new jobs is one major positive social impact of the project activity. The project activity creates a respectable number of permanent and high qualified jobs (See Table 6). Many of these additional positions are filled by local people as well.

F.1.2: Air Quality

Due to avoidance of fossil fuel combustion, these emissions will be reduced in parallel to reduced CO₂.

According to latest official data CO and NMVOC emissions due to electricity generation in 2012 are: 0.160 tons/GWh and 0.034 tons/ GWh respectively.

Reductions of proportionate amount in described emissions during operational life of the project activity. When electricity generation amount is considered for the project activity then annual emission avoidances with project implementation becomes CO: 32.34 tons and NMVOC: 6.91 tons tons/year.

F.1.3: Staff Trainings

Concerning local job creation, employed staff by Yuntdağ WPP was trained to increase their capabilities to handle their jobs efficiently. These kinds of trainings contribute job creation as well as human and institutional capacity. Description of the training, administration of the training program, attendee and duration of the training are provided below.

Table 5: Trainings provided by project owner

Güngör

Name and Surname	Date	Training
Bahattin Dilber	14.04.2017	health and safety
Erkan Yusuf Kurt	14.04.2017	health and safety
Necmettin Arıcı	14.04.2017	health and safety
Yasin Karabıyık	14.04.2017	health and safety
Bahattin Dilber	22.11.2017	working at height
Erkan Yusuf Kurt	22.11.2017	working at height
Necmettin Arıcı	22.11.2017	working at height
Yasin Karabıyık	22.11.2017	working at height

Innores

Name and Surname	Date	Training
------------------	------	----------

Hasan Soyer	14.04.2017	health and safety
Hamit Alptekinoğlu	14.04.2018	health and safety
Resül Gündüz	14.04.2019	health and safety
Serdar Yeşilirmak	14.04.2020	health and safety
Uğur Eker	14.04.2021	health and safety
Hasan Soyer	30.03.2018-30.03.2020	working at height
Hamit Alptekinoğlu	30.03.2018-30.03.2020	working at height
Resül Gündüz	30.03.2018-30.03.2020	working at height
Serdar Yeşilirmak	30.03.2018-30.03.2020	working at height
Uğur Eker	30.03.2018-30.03.2020	working at height
Serdar Yeşilirmak	24-28.04.2017	maintenance training
Hasan Soyer	23.07.2017-23.07.2020	first aid
Resül Gündüz	01.08.2017-01.08.2019	operator training
Serdar Yeşilirmak	01.08.2017-01.08.2019	operator training
Uğur Eker	01.08.2017-01.08.2019	operator training

F.2: Employment Created During Project Activities

F.2.1: Employment Created During Operation of the WPP

Table 6: Employment during Operation of the Plant

Name and Surname	Local Or Not
Innores	
Hasan Söyer	Local
Resül Gündüz	Local
Özüm Molvalıoğlu	Local
Senem Albayrak	Not Local
Uğur Eker	Not Local
Serdar Yeşilirmak	Not local
Hamit Alptekinoğlu	Not local
Securitas	
Alaattin KANAT	Local
Feridun ÇELİK	Local
Ali Köycüoğlu	Local
Erdal KARAKUZU	Local
Nordex	
Gökhan Taşkın	Not Local
İlhan Tülek	Not Local
Oğuz Kopal	Not Local
Zafer Avcı	Local
Güngör	
Bahattin Dilber	Local
Necmettin Arıcı	Local
Yasin Karabıyık	Not Local

Appendix 1. FARs

FAR1: The PP shall monitor the bird strikes more frequently to cover the next monitoring period as a whole. Onsite feedback shall be collected at least on a yearly basis. The verifying DOE shall check and validate the validity of the feedback on the next monitoring period.

ANS1: The latest ornithology report is now delivered. The letter has been added about there are no bird strikes.

Appendix 2.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
06.0	7 June 2017	Revision to: • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		