Monitoring report form (Version 03.2)

Monitoring report

Title of the project activity	Kayaduzu Wind Power Plant, Turkey
Reference number of the project activity	GS 950 (Markit ID: 103000000001979)
Version number of the monitoring report	V5
Completion date of the monitoring report	21/05/2014
Registration date of the project activity	11/12/2012
Monitoring period number and duration of this monitoring period	1. Monitoring Period, 01/07/2012 – 30/04/2014
Project participant(s)	Merzifon Enerji A.Ş.
Host Party(ies)	Turkey
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope No. 1, Energy industries, renewable sources. Applied Methodology: ACM0002 version 12.
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	122,394 tCO_2 Text
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	134,305 tCO_2
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012 (if applicable)	37,857 tCO_2e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards (if applicable).	96,448 tCO_2e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

The project of Merzifon Enerji A.S (hereafter referred to as "Merzifon"), Kayaduzu Project (hereafter referred to as the "Project" or "Kayaduzu WPP"), involves installation and operation of 16 turbines with rated power output of 2.5 MW each to best suit the local conditions of the project area. The generation of total capacity of 40 MW will be connected to a switchyard, where the voltage will be steeped up to high voltage with 0.69/34.5kV, 1600kVA transformers connected to each unit. The 16 turbines in the park will be connected as a single group to the Wind Power Plant Control Building Switching Center via underground cables. The energy generated by the power plant in the project area will be transferred to the National Electricity System (TEİAŞ) via 154 kV Ladikcim-Merzifon transmission line from the Kayaduzu Transformer Station.

Merzifon has granted generation license as IPP for 39 MWe wind power plant by Energy Market Regulatory Authority (EMRA) and this licence was issued in June 2004. As project license has 39 MW, one of turbines with 2.5 MW will be capped by 1.5 MW electrical power. With this total installed capacity will be 40 MWm and 39 MWe as stated in licence.

An estimated generation of 111,670 MWh per year by the efficient utilization of the available wind energy by project activity will replace the grid electricity, which is constituted of different fuel sources, mainly fossil fuels. In case no wind power plant is built, the 111,670 MWh generated electricity would be provided by conventional power plants fed with fossil fuels. The electricity produced by project activity will result in an annual emission reduction of 66,777 tonnes of CO2e. Moreover, project activity will contribute further dissemination of wind energy and extension of national power generation. Construction has started November 2010 and electricity generation started as of July 2012 and will have a technical lifetime of 20 years.

According to the wind farm energy yield assessment report of the site, 16 wind turbines with unit capacity of 2,500 kW were selected for the project. Nordex is decided as equipment provider due to the outstanding features of its product regarding safety factors, simple durable design for low maintenance and long life operation, high efficiency, and also for fine visual appearance. The key parameters about the technical design of the selected model N100/2500 HS of Nordex turbines is listed below in Table 1.

Table 1 ***Technical specifications of Nordex N100/2500 HS model turbines***

Specifications	Nordex N100[1]
Rated Power (kW)	2,500
Rotor Diameter (m)	100
Hub Height (m)	80
Num. of Blades	3
Cut in/cut out wind speed (m/)	4.0 – 20.0 m/s
Wind Speed at rated power(m/s)	14.0-20.0
Generator type	Double-fed asynchronous
Rotor Blade Material	Glass fibre-reinforced polyester, integrated lightening protection
Technical Lifetime	20 years

The total amount of emission reduction achieved in the first monitoring period is 134,305 tCO_2e, based on the electricity data of the plant and emission factor of 0.5980 tCO_2

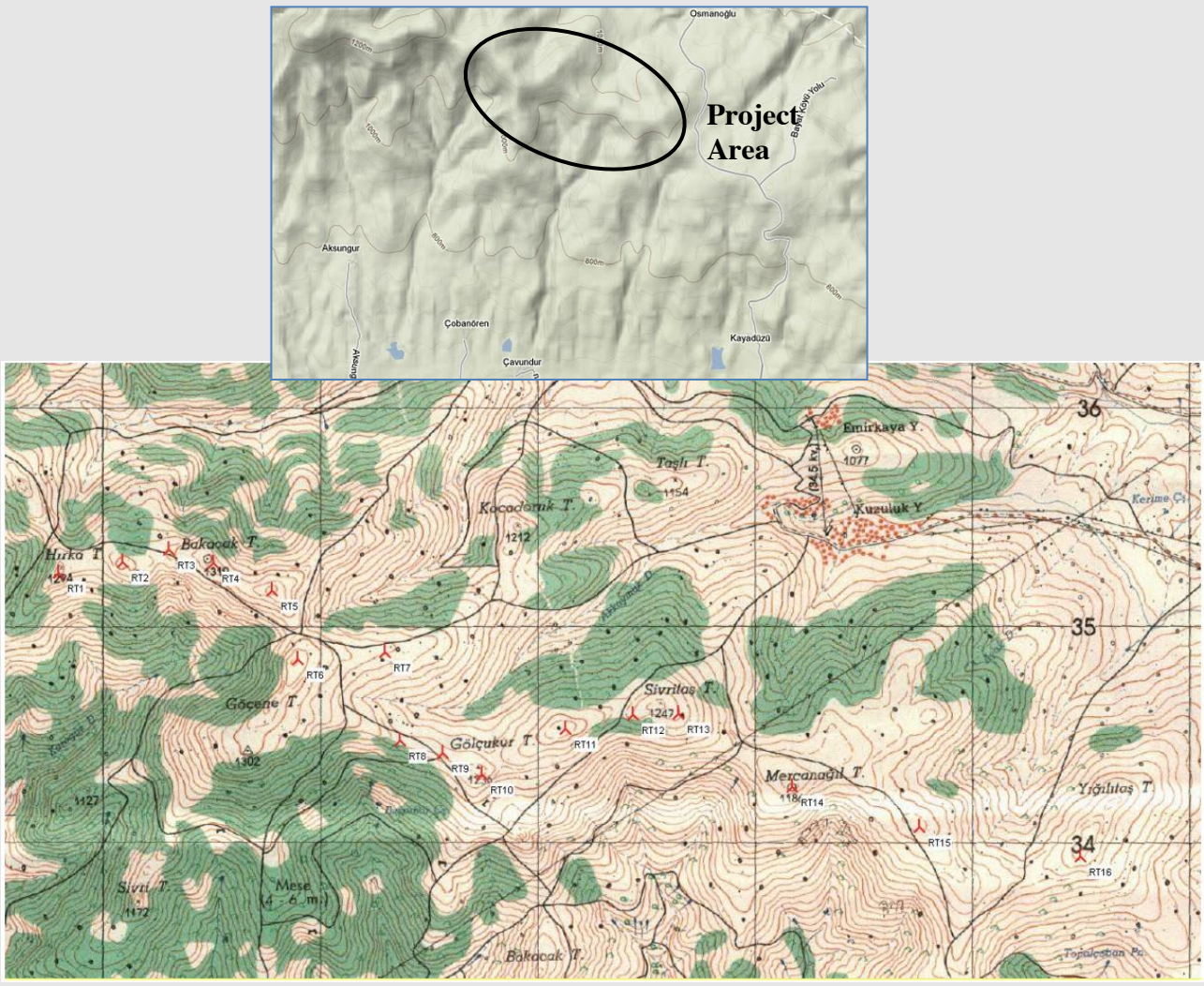
A.2. Location of project activity

Project area is 37 km north-west to the province Amasya, in the Black Sea region of Turkey. The project is in the province Amasya, 8 km north-east to the town of Merzifon. Location of the project is given below in the Map 1 with micrositing of the turbine and distance to the closest locations. Coordinates of turbines are also given in Table 2.

The Kayaduzu wind farm project is planned on a mountain ridge. The region is characterized by mountains (complex terrain) with significant differences in height. The site is located on bare hills with poor vegetation

[1] See, http://www.nordex-online.com/fileadmin/MEDIA/Gamma/Nordex_Gamma_N100_USA.pdf

like grass and bush land. The area is partly surrounded by transitional woodland and shrub. To the west and south of the site a large broad-leaved forest area is found.



Map 1: ***Project area with turbine micrositing***

Table 2: ***Geographical coordinates of the wind turbines of the project activity***

Wind Turbine No.	Latitude (N)	Longitude (E)	Wind Turbine No.	Latitude (N)	Longitude (E)
1	40° 56' 28"	35° 30' 14"	**9**	40° 55' 59"	35° 31' 29"
2	40° 56' 29"	35° 30' 27 "	**10**	40° 55' 56"	35° 31' 37"
3	40° 56' 31 "	35° 30' 37"	**11**	40° 56' 2"	35° 31' 54"
4	40° 56' 28 "	35° 30' 45 "	**12**	40° 56' 5"	35° 32' 7"
5	40° 56' 24"	35° 30' 56"	**13**	40° 56' 5"	35° 32' 16"
6	40° 56' 14"	35° 31' 1"	**14**	40° 55' 53"	35° 32' 37"
7	40° 56' 15"	35° 31' 18"	**15**	40° 55' 46"	35° 33' 2 "
8	40° 56' 2"	35° 31' 21 "	**16**	40° 55' 41"	35° 33' 34"

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Turkey (host country)	**Private entity:** Merzifon Enerji A.Ş.	**No**

A.4. Reference of applied methodology

Consolidated baseline methodology for grid-connected electricity generation from renewable sources (ACM0002, version 12)[2].

A.5. Crediting period of project activity

7 years (01/07/2012 to 30/06/2019, both days are included).

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

The project installation is finished according to the description in the GS-VER PDD and completely operational. The most important milestones are included in the following table:

Table 3: Milestone activities for the Project implementation.

Date (DD/MM/YYYY)	Activity
24/07/2008	Issuance of the Licence
01/06/2009	Decision of Board for carbon finance (Early consideration)
29/03/2010	Request for consultancy by Merzifon to FutureCamp Turkey
22/07/2010	Signature with FutureCamp Türkiye for VER Development
27/08/2010	Informing Gold Standard with project activity (Invitation to LSC Meeting)
21/09/2010	Holding of LSC Meeting
06/10/2010	Electromechanical Contract (Project Start and Investment Decision Date)
27/10/2010	Financing Closure date.
09/10/2010	Start date of construction of the roads
16/03/2012	Preliminary acceptance of 3 turbines
15/06/2012	Preliminary acceptance of 10 turbines
13/07/2012	Preliminary acceptance of last 3 turbines[3]
01/07/2012	Starting date of the crediting period.

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

No deviations

[2] See: http://cdm.unfccc.int/UserManagement/FileStorage/NAIRO8FDLZHKM42TYQGJS91WVBE36X

[3] For preliminary acceptance dates of the turbines see: http://www.enerji.gov.tr/yayinlar_raporlar/2012_Yili_Enerji_Yatirimlari.xls (Column "SANTRAL ADI", KAYADÜZÜ RÜZGAR ENERJİ SANTRALİ").

B.2.2. Corrections

During validation of the project activty, TEIAS was not utilizing remote-authomatic reading system from electronic meters. Thus, a staff of TEIAS and power plant operator were preparing a monthly reading protocol and mutually signing it. However, now TEIAS does not need such protocols and gets the meter readings automatically from meters and hence, there is no monthly meter reading protocols anymore.[4] PMUM records are the most reliable and official documents for net electricity generation calculation. Hence, Monitoring Report is revised to use PMUM records as the main source for net electricity generation calculation and, monthly meter reading protocols, which are kept by staff, will be used for cross-check.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

No permanent changes

B.2.4. Changes to project design of registered project activity

No changes

B.2.5. Changes to start date of crediting period

17/03/2012 is revised to 01/07/2012, because turbines are put in operation in group and as it can be seen from Table 3, in July 2012 all turbines are put in operation. Hence, first date of July 2012 is defined as starting date of the crediting period.

B.2.6. Types of changes specific to afforestation or reforestation project activity

NA

SECTION C. Description of monitoring system

C.1 Calibration Procedures

According to the Article 2 of the 'Communiqué Regarding the Meters to be used in the Electricity Market' (Communiqué)[5]: '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' (Regulation)[6] 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.' Therefore periodic calibration of the meters will be done every 10 years.

Also according to Article 67 (page 20) of this Regulation, the calibration shall be done in calibration stations which have been tested and approved by Ministry of Trade and Industry. Article 10 d) of Communiqué requires the meters shall be three phase four wire and Article 64 of Regulation clearly states how calibration shall be performed for this kind of meters.

According to Article 3 of System Usage Agreement done by Merzifon and TEIAS[7]; other than periodic tests, if a party alleges the meters are not working appropriately tests of the meters will be done by presence of

[4] See: http://epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/dengeleme_uzlastirma/ilgili_mevzuat/OSOSusulesas_son.doc (Article-7)

[5] See, http://www.epdk.org.tr/documents/elektrik/mevzuat/teblig/elektrik/sayaclar_hakkinda/Elk_Tblg_Sayaclar.doc, (page 6)

[6] See, http://www.sanayi.gov.tr/Files/Mevzuat/olcu-ve-olcu-aletleri-mua-2882013184633.pdf (page 2)

[7] See, http://www.teias.gov.tr/sistemkullanim1.doc , (Standard Template, page 3, 2-b)

both parties. If, after controls, it is seen that the meter is not working appropriately, the measurements of reserve meters are taken into account beginning from date both meters are reading the same (page 3, 2-c)

While there is no failure of the meter since first calibration, there has been no need for calibration during second monitoring period.

Specification of meters are as follow and picture of the meters are given in Figure 1:

Serial Number	Model	Type	Date of installation and calibration	Accuracy Standard
422418	ELSTER	A1500	28/11/2011	**0.5s**
422419	ELSTER	A1500	28/11/2011	**0.5s**

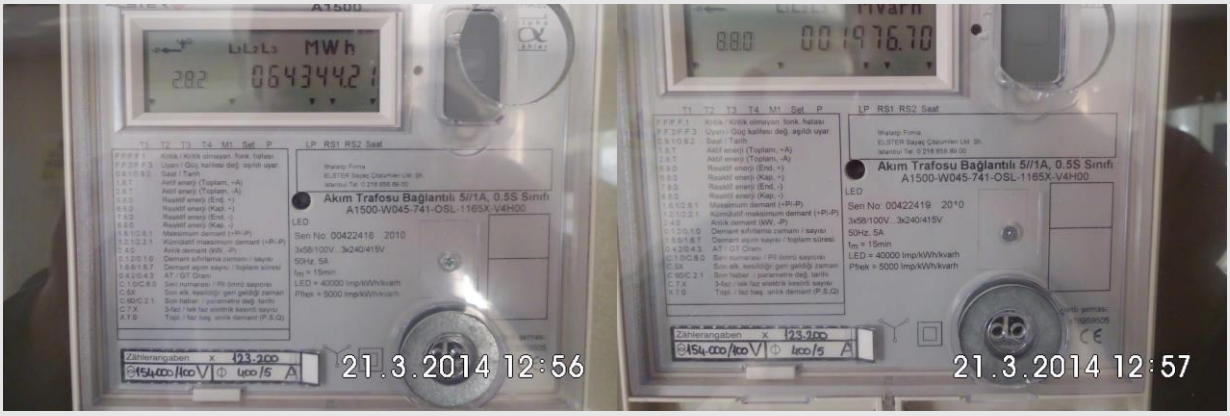


Figure 1 Photos of main (left) and reserve (right) meters

C.2. Data Processing and Archiving

C.2.1. Data Processing

The fact that two 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.

On the last day of each month, the production index will be taken from the main as well as the reserve meter by Market Financial Settlement Center (in Turkish PMUM, a state institution responsible for electricity market settlement operations) via Automatic Meter Reading System (OSOS)[8] In following month, PMUM issue electricity generation records for each generation unit which can be accessed by plant operators via logging to secured website. These records are used to monitor net monthly generation of the power plant. For each month, the net electricity amount supplied to the grid will be calculated by electricity fed into grid minus electricity withdrawn from the grid available in PMUM records.

Monthly meter reading protocols, which are kept by staff, are used to cross-check the PMUM records.

The above described measurement method follows Article 81 of the official regulation "Electricity Market Balancing and Settlement Regulation"[9]

C.2.2 A Backup Unit for Systematic Storage (Availability of the Manually Read Data in the PCs of the Project Developer)

The only relevant data that has to be monitored for emission reduction calculation is the net electricity generation ($EG_{facility,y}$) per year. The monthly meter reading documents are stored by Merzifon and TEIAS-PMUM. The settlement notification, which is issued by TEIAS-PMUM and includes the meter reading data, is stored on a TEIAS-PMUM file server and accessible for Merzifon via a secured website

[8] See: http://epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/dengeleme_uzlastirma/ilgili_mevzuat/OSOSusulesas_son.doc (Article-7)

[9] See, http://epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/dengeleme_uzlastirma/DUYson.doc (Article 81)

(http://dgpys.teias.gov.tr/dgpys/). The meters themselves can always be read as plausibility check for verification. With this, no additional structures or processes have to be implemented to insure the availability and high quality of the necessary data for monitoring.

At the end of each monitoring period, which is planned to generally last one year, the data from the monthly PMUM records will be added up to the yearly net electricity generation and multiplied with the combined margin emission factor with the help of an excel spreadsheet that also contains the combined margin calculation. Thus, the complete baseline approach is always transparent and traceable. For the elaboration and quality assurance of the monitoring report, FutureCamp GmbH, an expert in the project mechanisms who already supported in the project design, is assigned.

The collected data during the monitoring period will be kept by the project owner at least two years after the last issuance of VERs.

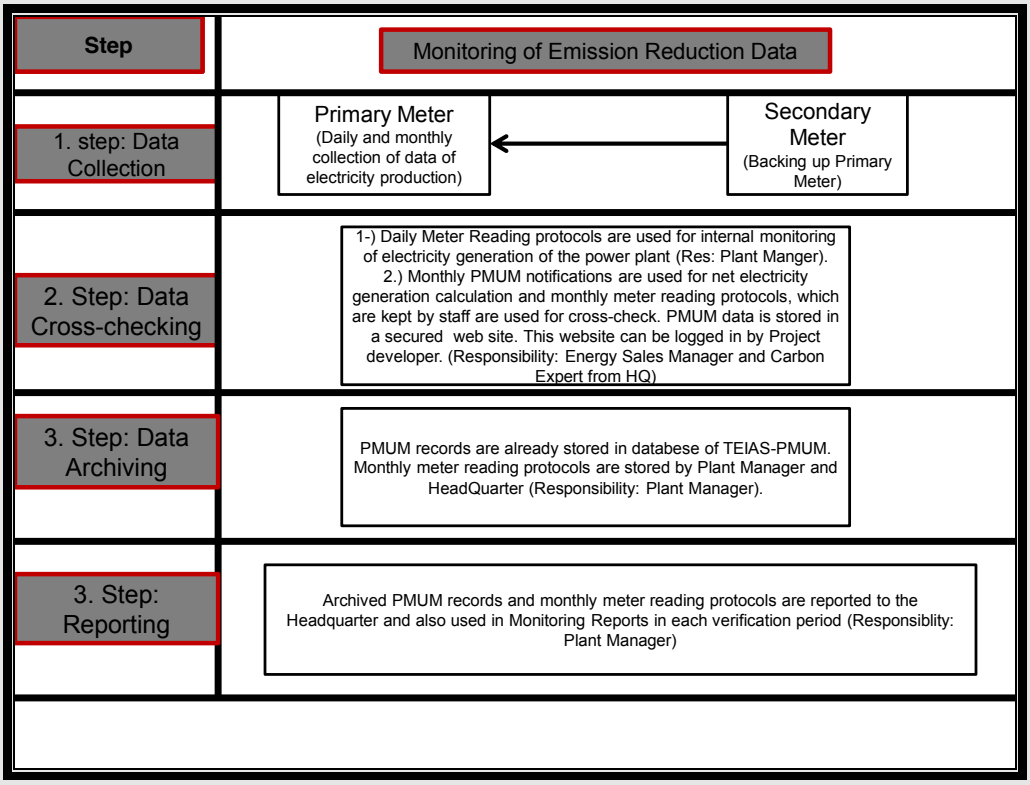


Figure 2 Line diagrams showing all relevant monitoring points

SECTION D. Data and parameters

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

Data / Parameter:	**$EF_{grid,CM,y}$**
Data unit:	tCO_2/MWh
Description:	Combined margin CO_2 emission factor for grid connected power generation in year *y*.
Source of data used:	As per "Tool to calculate the emission factor for an electricity system"
Value applied:	**0.5980 tCO_2/MWh**
Justification of the choice of data or description of measurement methods and procedures actually applied :	Calculated using the latest version of the "Tool to calculate the emission factor for an electricity system". For calculation please refer to section B.6.1 of PDD of the project.
Any comment:	

Data / Parameter:	Gross electricity generation
Data unit:	**MWh**
Description:	Gross Electricity supplied to the grid by relevant sources (2006-2008)
Source of data used:	Turkish Electricity Transmission Company (TEIAS), Annual Development of Turkey's Gross Electricity Generation of Primary Energy Resources (1975-2008) TEIAS, see: http://www.teias.gov.tr/istatistik2008/32(75-08).xls
Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	TEIAS is the national electricity transmission company, which makes available the official data of all power plants in Turkey.
Any comment:	

Data / Parameter:	Net electricity generation
Data unit:	**GWh**
Description:	Net electricity fed into the grid. Used for the calculation of the net/gross relation (Including Import and Export figures)
Source of data used:	Turkish Electricity Transmission Company (TEIAS): Annual Development of Electricity Generation- Consumption and Losses in Turkey (1984-2008) TEIAS. See: http://www.teias.gov.tr/istatistik2008/30(84-08).xls
Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	This data is used to find relation between the gross and net electricity delivered to the grid by fossil fuel fired power plants. Import and Export data is used to find total net electricity fed into the grid in the years of 2006, 2007 and 2008. TEIAS is the national electricity transmission company, which makes available the official data of all power plants in Turkey.
Any comment:	

Data / Parameter:	$HV_{i,y}$
Data unit:	Mass or volume unit
Description:	Heating Values of fuels consumed for electricity generation in the years of 2006, 2007 and 2008
Source of data used:	Heating Values Of Fuels Consumed In Thermal Power Plants In Turkey By The Electric Utilities, TEİAŞ. See: http://www.teias.gov.tr/istatistik2008/46.xls
Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	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.
Any comment:	

Data / Parameter:	$FC_{i,y}$
Data unit:	Mass or volume unit
Description:	Fuels consumed for electricity generation in the years of 2006, 2007 and 2008
Source of data used:	Annual Development of Fuels Consumed In Thermal Power Plants In Turkey By The Electric Utilities, TEİAŞ. See: http://www.teias.gov.tr/ist2007/43.xls

Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	TEİAŞ is the national electricity transmission company, which makes available the official data of all power plants in Turkey.
Any comment:	

Data / Parameter:	**$NCV_{i,y}$**
Data unit:	TJ/kton, TJ/million m^3
Description:	Net Calorific Value of fuel types in the years of 2006, 2007 and 2008
Source of data used:	Calculated by using HVi,y to FCi,y as Net Calorific Values of fuel types are not directly available in Turkey.
Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	TEİAŞ is the national electricity transmission company, which makes available the official data of power plants in Turkey. Calculation of NCVs from national $HV_{i,y}$ and $FC_{i,y}$ data is preferred to default IPCC data as these are more reliable.
Any comment:	

Data / Parameter:	**Sample Group for BM emission factor**
Data 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 used:	Annual Development of Fuels Consumed in Thermal Power Plants in Turkey by the Electric Utilities, TEIAS: For plants in 2004: http://www.teias.gov.tr/istat2004/7.xls For plants in 2005: http://www.teias.gov.tr/istatistik2005/7.xls For plants in 2006: http://www.epdk.org.tr/yayin_rapor/elektrik/yayin/uretimKapasiteProjeksiyonu.pdf (page 76 and 77 for installed power of new plants, page 67-75 for generation amounts. For capacity additions, interpolation method is used for generation amounts) For plants in 2007: http://www.epdk.org.tr/yayin_rapor/elektrik/yayin/uretimKapasiteProjeksiyonu2008_2017.pdf (page 121 and 122 for installed power of new plants, page 111-120 for generation amounts. For capacity additions, interpolation method is used for generation amounts) For plants in 2008: http://www.teias.gov.tr/projeksiyon/KAPASITEPROJEKSIYONU2009.pdf (page 95 for plants and pages 82-94 for generation amounts. For capacity additions, interpolation method is used for generation amounts)
Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	TEIAS is the national electricity transmission company, which makes available the official data of all power plants in Turkey.
Any comment:	

Data / Parameter:	**EF_i**
Data unit:	tCO_2/GJ
Description:	Emission factor for fuel type *i*
Source of data used:	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 applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	No plant specific and national emission factor data is available in Turkey. So, IPCC default data is used. For Fuel Oil Power Plants: 'Gas/Diesel Oil' data is used for conservativeness. For Coal Power Plants: In the page 205 of official document given in the link below, it is stated that Çolakoğlu and İçdaş utilizes 'Taşkömürü' (Hardcoal). And at the Table-2 in page 157 of the same document, Taşkömürü is dived in two groups: Bituminous and Antharcite. Since Sub-Bituminous Coal is under Brown Coal in the same table and since Other Bituminous Coal has lower EF than Anthracite in 1.4 of IPCC Guidelines, EF for 'Other Bituminous Coal' is used. See: http://www.dpt.gov.tr/DocObjects/Icerik/4225/Enerji_Hammaddeleri_(Linyit_Taskömuru-Jeotermal)
Any comment:	

Data / Parameter:	$\eta_{i,y}$
Data unit:	-
Description:	Average energy conversion efficiency of power unit m in year y
Source of data used:	TEİAŞ and Annex I of the “Tool to calculate the emission factor for an electricity system”
Value applied:	See the registered PDD
Justification of the choice of data or description of measurement methods and procedures actually applied :	For Lignite and Coal power plants, plants specific values are applied. There are two lignite power plant in Sample Group. These are Çan and Elbistan PPs. For efficiency factor of Çan PP is taken form presentation of Mr. Sefer Bütün (General Manager of EUAS, state production company), which is ‘Thermal Power Plants and Environment’. This presentation is submitted to DOE. In the 18th page of the presentation, it is stated that for pulverized lignite power plants the highest achieved electrical efficiency rate is 38%. So this rate is applied also for Elbistan-B PP. Weighted average of these efficiency rates, which turns to be 38.63% is used for lignite power plants. For coal power plants, the highest efficiency rate for ‘fluidized bed’ technology which is 41.5% for PFBS is applied as coal PPs in the sample group (Çolakoğlu (Capacity Increment) and Çan Gr I-II) are utilizing fluidized bed type technology. For reference see: http://www.mimag-samko.com.tr/akiskan_yatakli_kazanlar.pdf (last paragraph of page 6) For Natural Gas and Oil plants efficiencies, default value given in the tool is applied: http://cdm.unfccc.int/methodologies/Tools/EB35_repan12_Tool_grid_emission.pdf
Any comment:	

D.2. Data and parameters monitored

Data / Parameter:	**$EG_{facility,y}$**
Data unit:	MWh/yr
Description:	Quantity of net electricity generation supplied by the project plant to the grid in year *y*
Source of data to be used:	On site measurement
Value of data	224,592.829 MWh

Description of measurement methods and procedures to be applied:	• Regarding the electricity meters: two meters will be placed (one main and one reserve). The fact that two 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. • On the last day of each month, the production index will be taken from the main as well as the reserve meter by Market Financial Settlement Center (in Turkish PMUM, a state institution responsible for electricity market settlement operations) via Automatic Meter Reading System (OSOS)[10] In following month, PMUM issue electricity generation records for each generation unit which can be accessed by plant operators via logging to secured website. These records are used to monitor net monthly generation of the power plant. For each month, the net electricity amount supplied to the grid will be calculated by electricity fed into grid minus electricity withdrawn from the grid available in PMUM records. • Monthly meter reading protocols, which are kept by staff, are used to cross-check the PMUM records. • 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. Thus with this procedure is monitored sufficient and no extra Monitoring has to be implemented. The above described measurement method follows Article 81 of the official regulation "Electricity Market Balancing And Settlement Regulation"[11].
QA/QC procedures to be applied:	As stated at the end of the first paragraph of A.2 part of this PDD (page 2), Kayaduzu WPP will be connected to the grid with 154 kV voltage level. According to the first paragraph of the sub clause b) of Provisional Article 4 of the 'Communiqué Regarding the Meters to be used in the Electricity Market '[12] (Communiqué): *'2. The measurement points of the generation facilities connected to the transmission system transformers over 36kV or lower lines shall be at the* ***entry side of the step down transformers of the generation facilities****.'* 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'[13] (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****.'* Therefore periodic calibration of the meters will be done every 10 years. Also according to Article 67 (page 20) of this regulation, the calibration shall be done in calibration stations which have been tested and approved by Ministry of

[10] See: http://epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/dengeleme_uzlastirma/ilgili_mevzuat/OSOSusulesas_son.doc (Article-7)

[11] See, http://epdk.org.tr/documents/elektrik/mevzuat/yonetmelik/elektrik/dengeleme_uzlastirma/DUYson.doc (Article 81)

[12] See, http://www.epdk.org.tr/english/regulations/electric/meters.doc, (page 6)

[13] See, http://www.sanayi.gov.tr/download/osgm/olcu_aletleri_muayene_yonetmelik.zip (page 2)

	Trade and Industry. Article 10 d) of Communiqué requires the meters shall be three phase four wire and Article 64 of Regulation clearly states how calibration shall be performed for this kind of meters. According to Article 3 of System Usage Agreement [14] done by Merzifon and TEIAS; other than periodic tests, if a party alleges the meters are not working appropriately tests of the meters will be done by presence of both parties. If, after controls, it is seen that the meter is not working appropriately, the measurements of reserve meters are taken into account beginning from date both meters are reading the same (page 3, 2-c) As above mentioned, the data acquisition and management and quality assurance procedures that are anyway in place, no additional procedures have to be established for the monitoring plan.
Any comment:	

D.3. Implementation of sampling plan

NA

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \qquad \textbf{(5)}$$

Where:

ER_y = Emission reductions in year y (tCO_2/yr).

BE_y = Baseline emissions in year y (tCO_2/yr).

PE_y = Project emissions in year y (tCO_2/yr).

LE_y = Leakage emissions in year y (tCO_2/yr).

As shown in section E.2 and E.3, Project and Leakage emissions are not applicable for this project activity. Thus:

$$ER_y = BE_y$$

Baseline emissions

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, calculated as follows:

$$BE_y = (EG_y - EG_{baseline}) \times EF_{grid,CM,y} \qquad \textbf{(6)}$$

Where:

BE_y = Baseline emissions in year y (tCO_2/yr).

[14] See, http://www.teias.gov.tr/sistemkullanim1.doc , (page 3, 2-b)

EG_y = Electricity supplied by the project activity to the grid (MWh).

$EG_{baseline}$ = Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh). For new power plants this value is taken as zero.

$EF_{grid.CM.y}$ = 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", which is 0.5980 tCO_2e/MWh for the first crediting period.

The project activity is the installation of a new grid-connected renewable power plant so, $EG_{baseline} = 0$

Then:

$ER_y = BE_y = EG_y * 0.5980$

E.2. Calculation of project emissions or actual net GHG removals by sinks

The proposed project activity involves the generation of electricity by development of a wind farm. The generation of electricity does not result in greenhouse gas emissions and therefore is taken as 0 tCO2/year.

E.3. Calculation of leakage

The energy generating equipment is not transferred from or to another activity. Therefore leakage does not have to be taken into account and is taken as 0 tCO2/year, according to ACM0002 (Version 12, page 10)

Based on above formulations and explanations, emission reduction of the Kayaduzu WPP during the first monitoring period is calculated as below:

Table 4 Kayaduzu WPP Emission Reduction Calculations (01/07/2012-30/04/2014)

Period	Electricity supplied to the grid (MWh) (1)	Electricity consumption from the grid (MWh) (2)	Net electricity supplied to the grid (MWh) (3) =(1)-(2)	Baseline emissions: (ER = GEN * EF (0.5980 tCO2e/MWh)) [tCO2e]
July 12	12,122.128	9.039	12,113.089	7,243.627
Aug 12	14,146.643	4.300	14,142.343	8,457.121
Sep 12	11,419.750	15.326	11,404.424	6,819.846
Oct 12	5,674.469	23.796	5,650.673	3,379.102
Nov 12	9,141.927	16.047	9,125.880	5,457.276
Dec 12	10,888.406	17.975	10,870.431	6,500.518
Sum July-Dec 2012	**63,393.323**	**86.483**	**63,306.840**	**37,857.490**
Jan 13	14,189.671	14.553	14,175.118	8,476.721
Feb 13	9,845.448	13.543	9,831.905	5,879.479
Mar.13	13,468.883	7.564	13,461.319	8,049.869
Apr 13	8,120.852	17.011	8,103.841	4,846.097
May.13	7,785.414	18.714	7,766.700	4,644.487
June 13	9,761.891	17.165	9,744.726	5,827.346
July 13	15,318.398	7.805	15,310.593	9,155.735
Aug 13	15,373.555	7.007	15,366.548	9,189.196
Sep 13	7,476.054	13.820	7,462.234	4,462.416
Oct 13	7,831.891	22.105	7,809.786	4,670.252
Nov 13	8,817.064	16.743	8,800.321	5,262.592
Dec 13	11,645.203	9.800	11,635.403	6,957.971
Sum 2013	**129,634.324**	**165.830**	**129,468.494**	**77,422.159**

Jan 14	8,966.203	15.406	8,950.797	5,352.577
Feb 14	5,977.975	18.739	5,959.236	3,563.623
Mar.14	9,100.994	12.367	9,088.627	5,434.999
Apr 14	7,834.645	15.810	7,818.835	4,675.663
Sum Jan-Apr 2014	**31,879.817**	**62.322**	**31,817.495**	**19,026.862**
GRAND SUM	**224,907.464**	**314.635**	**224,592.829**	**134,306.512**

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO_2e)	Project emissions or actual net GHG removals by sinks (t CO_2e)	Leakage (tCO_2e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO_2e)
01.07.2012 - 31.12.2012	37,857	0	0	37,857
01.01.2013 - 31.12.2013	77,422	0	0	77,422
01.01.2014 - 30.04.2014	19,026	0	0	19,026
Total Sum	**134,305**	**0**	**0**	**134,305**

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

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (tCO_2e)	122,394 tCO_2	134,305 tCO_2

E.6. Remarks on difference from estimated value in registered PDD

Difference is most steaming from the fact that the power plant generated around 10% more than generation estimated before during monitoring period. This is because the last years were windier than expectation.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO_2e)	**37,857 tCO_2e**	**96,448 tCO_2e**

SECTION F SUSTAINABILITY MONITORING REPORT

According to the requirements of Gold Standard Version 2.0, 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

The indicators that have to be monitored is defined in the Gold Standard Passport of the KAYADUZU WPP under a monitoring plan.

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

According to the Gold Standard Passport of the KAYADUZU WPP, 9 indicators were added to the monitoring plan.

F.1.1: Air Quality

F.1.1.a: Monitoring Table from GS Passport of KAYADUZU WPP

No		1
Indicator		Air Quality
Mitigation measure		a) No mitigation measure required b) Dust emissions will be reduced by watering the roads frequently.
Chosen parameters		a) Amount of CO, NMVOC b) Level of dust emissions during construction of the project activity;
Current situation of parameter		b) Dust emissions due to wind
Estimation of baseline situation of parameter		a) According to latest official data CO and NMVOC emissions due to electricity generation in 2008 are: 0.143 tons/GWh and 0.036 tons/GWh respectively[15].
Future target for parameter		a) Reductions of proportionate amount in described emissions during operational life of the project activity. When electricity generation amount (111,670 MWh/y) is considered for the project activity then expected annual emission avoidances with project implementation becomes 15.969 and 4.02 tons respectively for each parameter. b) Continuation of the current situation
Way of monitoring	How	a) Amount of electricity generated will be monitored to calculate estimated CO and NMVOC emission reductions by project activity. b) Written confirmation by Muhtar will be provided to DOE for confirmation or regular watering of the roads for prevention of dust during construction period.
	When	a) Annually b) Annually until completion of the construction phase.
	By who	Assigned technician by Plant Manager or assigned carbon consultant

F.1.1.b: Monitoring of Air Quality Indicator

No	1
Indicator	Air Quality

[15] The unit emissions are calculated as dividing emission amount for each parameter with net electricity amount. (For CO and NMVOC emission amounts see TUIK: http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=7 and http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6276&tb_id=8, respectively); For net electricity generation in 2008 see TEİAŞ http://www.teias.gov.tr/istatistik2008/30(84-08).xls. Calculation is further substantiated in Monitoring Plan of CM Calculation Worksheet, which is available to DOE.

Chosen parameter 1.a)	**Amount of CO, NMVOC**
Remarks on the monitoring process of the parameter	Monitoring of the parameter is based on the data available from TUİK and electricity generation of the plant.
Current situation of parameter	According to the current data available from TUİK and TEİAŞ and electricity amount produced (224.59 GWh) by KAYADUZU WPP for the first monitoring period, amount of avoided emissions are as below: CO=32.1 tons , NMVOC=8.1 tons
Other Data Sources	No other data sources then TUIK official data and electricity generation of the plant.
Scoring of the indicator compared to Baseline	+

No	1
Indicator	Air Quality
Chosen parameter 1.b)	**Level of dust emissions during construction of the project activity**
Remarks on the monitoring process of the parameter	PP had regularly watered the construction site to avoid excessive dust emissions
Current situation of parameter	Statement of Muhtar confirms that the PP has regularly watered the roads and the dust level occurred during the construction had not disturbed them (please see **Figure 4** for the letter of Muhtar).
Other Data Sources	No other sources
Scoring of the indicator compared to Baseline	+

F.1.2: Water Quality and Quantity

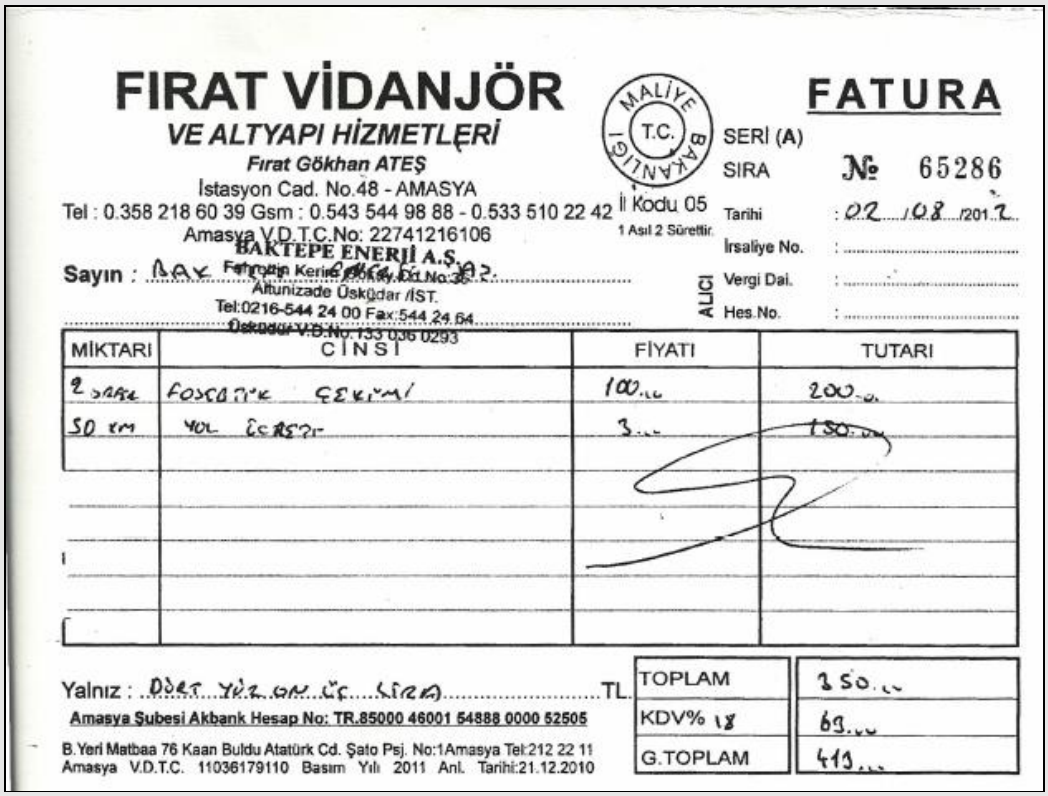
F.1.2.a: Monitoring Table from GS Passport of KAYADUZU WPP

No.		2
Indicator		Water quality: Cesspool discharge
Mitigation measures		Wastewater produced by workers during construction and operation will not be released to the environment but will be collected in an impermeable septic tank, which will be constructed on the site. Later they will be periodically transferred to the wastewater treatment plant of Merzifon Municipality by sewage truck.
Chosen parameter		Wastewater gathered in the cesspool.
Current situation of parameter		No wastewater has been generated and gathered.
Estimation of baseline situation of parameter		Continuation of current situation
Future target for parameter		Continuation of baseline situation
Way of monitoring	How	Receipts for demonstration of regular transfer of wasterwater from the cesspool with a sewage truck.
	When	Annually until completion of the construction phase.
	By who	Assigned technician by Plant Manager or assigned carbon consultant and DOE.

F.1.2.b: Monitoring of Water Quality and Quantity Indicator

No	2
Indicator	Water quality: Cesspool discharge
Chosen parameter	**Wastewater gathered in the cesspool.**
Remarks on the monitoring process	Domestic wastewater during construction and operation will be collected in the leakage-proof septic tank and will be periodically transferred by municipality.
Current situation of parameter	Wastewater produced by workers was not released to the

	environment but was collected in an impermeable septic tank and transferred periodically via a vacuum truck. Invoice of transfer is given in **Figure 3**.
Other Data Sources	No other sources of data then the report of experts, daily records of gauging station in the weir of the power plant and invoice of sewage water transfer.
Scoring of the indicator compared to Baseline	0



FIRAT VİDANJÖR
VE ALTYAPI HİZMETLERİ
Fırat Gökhan ATEŞ
İstasyon Cad. No.48 - AMASYA
Tel : 0.358 218 60 39 Gsm : 0.543 544 98 88 - 0.533 510 22 42
Amasya V.D.T.C.No: 22741216106

FATURA

MALİYE BAKANLIĞI T.C.

SERİ (A)
SIRA № 65286
İl Kodu 05
1 Asıl 2 Sürettir.
Tarihi : 02 / 08 /201 2
İrsaliye No. :
Vergi Dai. :
Hes.No. :

Sayın : BAKTEPE ENERJİ A.Ş.
Altunizade Üsküdar /IST.
Tel:0216-544 24 00 Fax:544 24 64
Üsküdar V.D.No: 133 036 0293

ALICI

MİKTARI	CİNSİ	FİYATI	TUTARI
2 SARE	FOSSA'NIN ÇEKİMİ	100.00	200.00
50 KM	YOL ÜCRETİ	3...	150.00

Yalnız : DÖRT YÜZ ON ÜÇ LİRA TL.

TOPLAM	350.00
KDV% 18	63.00
G.TOPLAM	413.00

Amasya Şubesi Akbank Hesap No: TR.85000 46001 54888 0000 52505

B.Yeri Matbaa 76 Kaan Buldu Atatürk Cd. Şato Psj. No:1Amasya Tel:212 22 11
Amasya V.D.T.C. 11036179110 Basım Yılı 2011 Anl. Tarihi:21.12.2010

Figure 3 *Invoice of provider for sewage truck transfer of wastewater for Kayaduzu WPP.*

F.1.3: Soil Condition

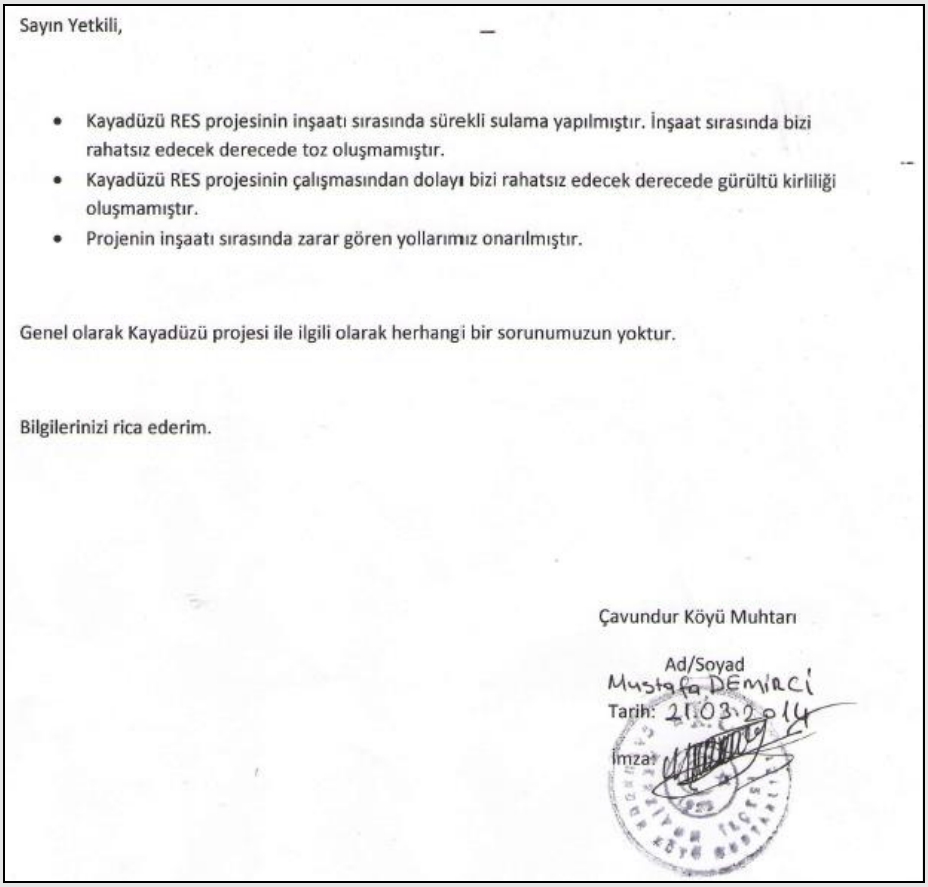
F.1.3.a: Monitoring Table from GS Passport of KAYADUZU WPP

No		3
Indicator		Soil Condition
Chosen parameter		**Road conditions**
Mitigation measure		Roads can be damaged during construction stage as they might be used for bigger vehicles. As long as the construction stage is over, the roads shall be repaired.
Current situation of parameter		Roads are used only for the small vehicles of local people from the village. Therefore, no damage has been observed.
Estimation of baseline situation of parameter		Continuation of current situation
Future target for parameter		Repairing of the road after construction stage is over.
Way of monitoring	How	Checking the roads during first on site visit and statement of local people
	When	Annually until completion of the construction phase.
	By who	Assigned technician by Plant Manager or assigned carbon consultant and DOE.

F.1.3.b: Monitoring of Soil Condition Indicator

No	3

Indicator	Soil Condition
Chosen parameter 3.d)	**Road Condition**
Remarks on the monitoring process of the parameters	Roads are checked by DOE during site visit and opinion of the local people also taken about roads.
Current situation of parameter	All damaged roads are renovated after the construction.
Other Data Sources	During construction, only road of Kayadüzü village is used. According to regulations, only Special Provincial Administration of related city can make renovation of roads. However, the company using the roads needs to compensate payments for renovation. Evidence of receipt showing that the project owner has made payment which is identified by Special Provincial Administration of Amasya city for renovation of road of Kayadüzü village, is submitted to the DOE: project owner
Scoring of the indicator compared to Baseline	0



Sayın Yetkili,

- Kayadüzü RES projesinin inşaatı sırasında sürekli sulama yapılmıştır. İnşaat sırasında bizi rahatsız edecek derecede toz oluşmamıştır.
- Kayadüzü RES projesinin çalışmasından dolayı bizi rahatsız edecek derecede gürültü kirliliği oluşmamıştır.
- Projenin inşaatı sırasında zarar gören yollarımız onarılmıştır.

Genel olarak Kayadüzü projesi ile ilgili olarak herhangi bir sorunumuzun yoktur.

Bilgilerinizi rica ederim.

Çavundur Köyü Muhtarı

Ad/Soyad
Mustafa DEMİRCİ
Tarih: 21.03.2014
İmza:

Figure 4 *Letter of Muhtar Including Opinions Regarding Various Impacts of the Project*

F.1.4: Other Pollutants

F.1.4.a: Monitoring Table from GS Passport of KAYADUZU WPP

No	4
Indicator	Other pollutants
Mitigation measure	a) Solid waste produced per person will be 1.34 kg/day, thus when plant is under construction; total waste is 26.8 kg/day, and during operation 6.7 kg/day. The solid waste will firstly be separated for recycling if possible, if not it will be collected in rubbish bins and will be collected by Merzifon or Kayaduzu municipality. b) The distance of the project to closest settlement (Çavundur village) is more than 3 km. While noise level is 37.04 dBA in 250 meter from WPP, regarding Distance Related Noise Graphic for industrial plants according to Regulation of Assessment and

		Management of Environmental Noise, the noise level from Kayaduzu WPP is far below allowed level i.e., the noise caused by the wind turbines will not affect the villages in the area.
Chosen parameters		**a) Solid waste disposal** **b) Noise**
Current situation of parameters		a) No solid waste has been generated. b) No noise has been generated.
Estimation of baseline situation of parameters		a) Continuation of the current situation b) Continuation of the current situation
Future target for parameters		a) Continuation of the baseline situation b) Continuation of the baseline situation
Way of monitoring	How	a) Amount of solid waste shall be monitored. This will be monitored with a letter from Mayor of transferring municipality. b) This will be monitored with a letter from Mayor of Çavundur village.
	When	a) Annually until completion of the construction phase. b) Annually until completion of the construction phase.
	By who	Assigned technician by Plant Manager or assigned carbon consultant and DOE.

F.1.4.b: Monitoring of Other Pollutants Indicator

No	4
Indicator	Other Pollutants
Chosen parameter 4.a)	**Solid waste disposal**
Remarks on the monitoring process of the parameters	Written statement of municipality is used to demonstrate regular transfer solid building wastes from the site.
Current situation of parameter	Solid wastes (MSW) are periodically collected by Merzifon Municipality. Related letter of the mayor is provided in **Figure 5**.
Other Data Sources	NA
Scoring of the indicator compared to Baseline	0

No	4
Indicator	Other Pollutants
Chosen parameter 4.b)	**Noise**
Remarks on the monitoring process of the parameters	Written statement of the village head about noise during operation is used to demonstrate limited noise occurrence from Kayaduzu WPP.
Current situation of parameter	Please see **Figure 4** for statement of Muhtar of Çavundur village, indicating that noise occurred during operation of Kayaduzu WPP is not disturbing.
Other Data Sources	NA
Scoring of the indicator compared to Baseline	0

T.C.
MERZİFON İLÇESİ
KAYADÜZÜ BELEDİYE
BAŞKANLIĞI

SAYI : M.05.08.KAY.0.10/ 172 14.08.2013
KONU : RES.

İLGİLİ MAKAMA

Kasabamız sınırları içerisinde bulunan Merzifon Enerji A.Ş ye ait Kayadüzü RES teki evsel atıklar Belediyemizce düzenli olarak alınmaktadır.

Gereğini bilgilerinize arz ederim.

Bahtiyar ÇİL
Belediye Başkanı

Figure 5 Letter of Merzifon Municipality for regular collection of MSW wastes form Kayaduzu WPP

F.1.5: Biodiversity
F.1.5.a: Monitoring Table from GS Passport of KAYADUZU WPP

No		5
Indicator		Biodiversity
Mitigation measure		- Blades of turbines will be painted with orange colour - A red flashing light will be mounted on top of turbines
Chosen parameter		**Number of bird strikes**
Current situation of parameter		No turbines on the area
Estimation of baseline situation of parameter		Continuation of current situation
Future target for parameter		Painting of turbine blades and mounting of red lights on top of turbines.
Way of monitoring	How	By observation of measures on site with DOE.
	When	Once during first verification
	By who	Assigned technician by Plant Manager or assigned carbon consultant and DOE.

F.1.5.b. Monitoring of Biodiversity Indicator

No	5
Indicator	Biodiversity
Chosen parameter	**Number of bird strikes**
Remarks on the monitoring process of the parameters	Photos and observation by DOE on site to show that the blades are painted in orange and flashing lights are mounted on the top of the turbines. A picture of turbine at Kayaduzu WPP is given in ***Figure 6***.
Current situation of parameter	Blades of turbines are painted in orange and flashing lights are mounted on top of each turbine.
Other Data Sources	No other data sources.

Scoring of the indicator compared to Baseline	0

Figure 6 The picture of turbines at Kayaduzu WPP

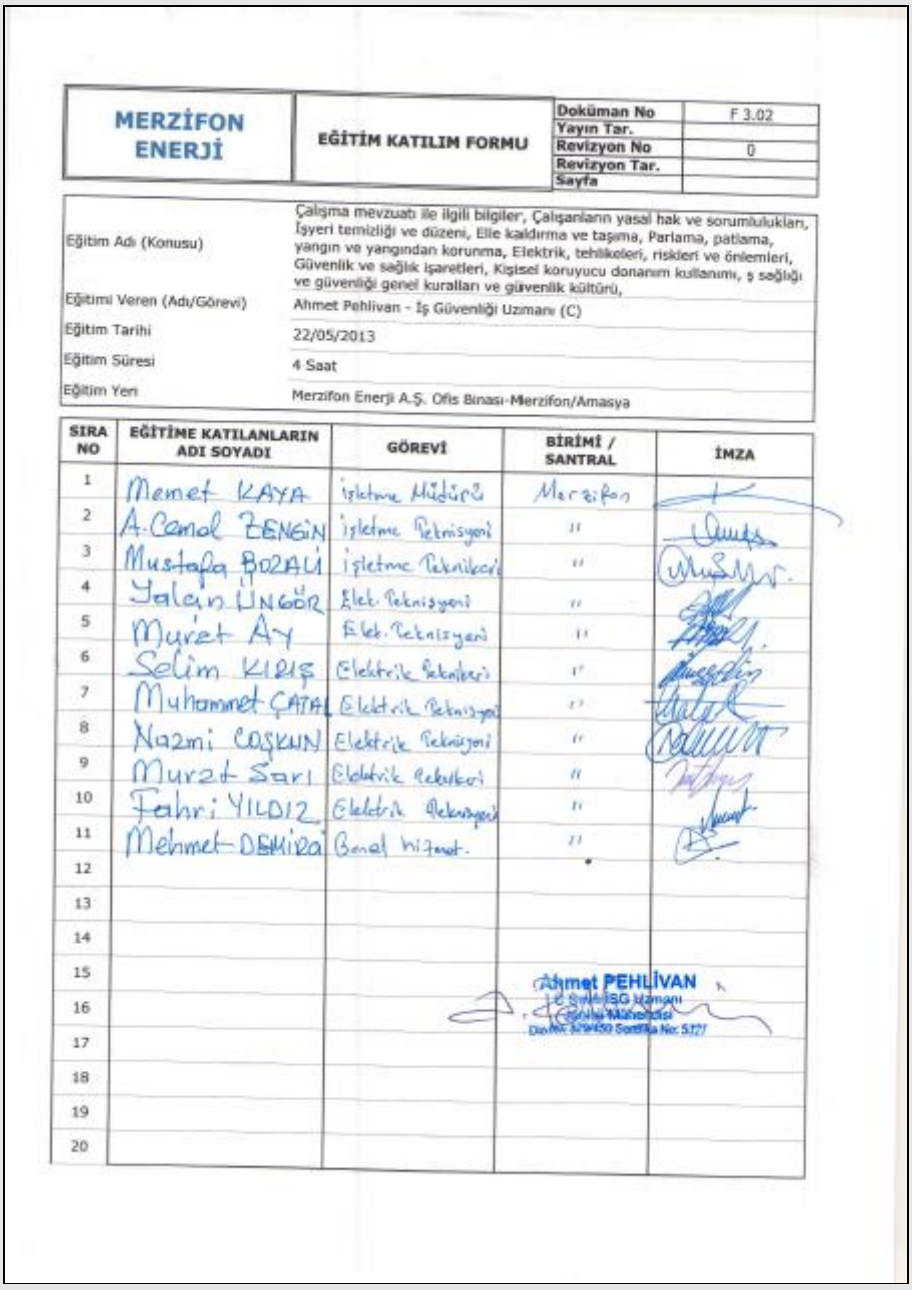
F.1.6: Quality of Employment
F.1.6.a: Monitoring Table from GS Passport of KAYADUZU WPP

No		6
Indicator		Quality of employment
Mitigation measure		Not applicable.
Chosen parameter		**Health and Safety Trainings**
Current situation of parameter		Not applicable.
Estimation of baseline situation of parameter		Not applicable
Future target for parameter		All staff will have trainings on Occupational Health and Safety issue.
Way of monitoring	How	Training attendance list and/or certificates.
	When	Annually (Once at the end of the each monitoring period). After first verification period, only new cases and refreshment trainings will be reported.
	By who	Assigned technician by Plant Manager or assigned carbon consultant.

F.1.6.b. Monitoring of Quality of Employment Indicator

No	6
Indicator	Quality of employment
Chosed parameter 6.a)	**Health and Safety Trainings**
Remarks on the monitoring process of the parameters	Training certificates and attendance list is used for monitoring of this parameter.
Current situation of parameter	All of the staff working at the power plant and are employee of

	Merzifon Enerji A.Ş. (total 11), had Health&Safety trainings and granted the certificate. Training attendance is given in **Figure 7**. Certificates are provided to DOE.
Other Data Sources	No other sources of data than certificates and attendance list.
Scoring of the indicator compared to Baseline	+



MERZİFON ENERJİ — EĞİTİM KATILIM FORMU

Doküman No	F 3.02
Yayın Tar.	
Revizyon No	0
Revizyon Tar.	
Sayfa	

Eğitim Adı (Konusu)	Çalışma mevzuatı ile ilgili bilgiler; Çalışanların yasal hak ve sorumlulukları, İşyeri temizliği ve düzeni, Elle kaldırma ve taşıma, Parlama, patlama, yangın ve yangından korunma, Elektrik, tehlikeleri, riskleri ve önlemleri, Güvenlik ve sağlık işaretleri, Kişisel koruyucu donanım kullanımı, ş sağlığı ve güvenliği genel kuralları ve güvenlik kültürü,
Eğitimi Veren (Adı/Görevi)	Ahmet Pehlivan - İş Güvenliği Uzmanı (C)
Eğitim Tarihi	22/05/2013
Eğitim Süresi	4 Saat
Eğitim Yeri	Merzifon Enerji A.Ş. Ofis Binası-Merzifon/Amasya

SIRA NO	EĞİTİME KATILANLARIN ADI SOYADI	GÖREVİ	BİRİMİ / SANTRAL	İMZA
1	Memet KAYA	İşletme Müdürü	Merzifon	
2	A.Cemal ZENGİN	İşletme Teknisyeni	"	
3	Mustafa BOZALİ	İşletme Teknikeri	"	
4	Yalçın ÜNGÖR	Elek. Teknisyeni	"	
5	Murat AY	Elek. Teknisyeni	"	
6	Selim KIRIŞ	Elektrik Teknikeri	"	
7	Muhammet ÇATAL	Elektrik Teknisyeni	"	
8	Nazmi COŞKUN	Elektrik Teknisyeni	"	
9	Murat Sarı	Elektrik Teknikeri	"	
10	Fahri YILDIZ	Elektrik Teknisyeni	"	
11	Mehmet DEMİRBAŞ	Genel Hizmet.	"	
12				
13				
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18				
19				
20				

Ahmet PEHLİVAN
İş Sağlığı ve Güvenliği Uzmanı
Diploma No: 3294450 Sertifika No: 5727

Figure 7 *Health&Safety Training Attendance List*

F.1.7: Quantitative employment and income generation
F.1.7.a: Monitoring Table from GS Passport of KAYADUZU WPP

No	7
Indicator	Quantitative employment and income generation
Mitigation measure	No mitigation measures.
Chosen parameters	**Number of local employment with more than minimal wage**

Current situation of parameters		Agricultural related employment
Estimation of baseline situation of parameters		Continuation of baseline situation
Future target for parameters		More than 3
Way of monitoring	How	For number of local employment: social insurance registries and receipts of employees. After first verification, only changes in employees will be reported.
	When	Annually
	By who	Assigned technician by Plant Manager or assigned carbon consultant.

F.1.7.b: Monitoring of Quantitative employment and income generation

No	7
Indicator	Quantitative employment and income generation
Chosen parameter 8.a)	**Number of local employment with more than minimal wage**
Remarks on the monitoring process of the parameters	Monitoring Process was handled by: Social insurance registries and residence certificates of employees.
Current situation of parameter	Total number of employees at the power plant is 16 (5 of them are working at subcontractor Akdeniz Güvenlik as security guard) and of them 6 employees are from neighboring residences and wage of all of these local employees are more than minimal wage defined by the state for the year of 2014, which is 846 TL[16]. The list of staff with place of residence for local ones who has wages more than minimal wage, is given in ***Table 5***. The wages of the staff and residence certificates are provided to DOE
Other Data Sources	No other sources of data than social security receipts, certificates of residences and monthly bill of wages of staff.
Scoring of the indicator compared to Baseline	+

Table 5 Name and Place of Residence of Staffs at Kayaduzu WPP

No.	Name/Surname of Staff	Company	Local / Not Local	Place of Residence if Local
1	Mustafa Bozalı	Merzifon Enerji	Local	Amasya-Merzifon
2	Mehmet Kaya	Merzifon Enerji	Not Local	
3	Ahmet Cemal Zengin	Merzifon Enerji	Not Local	
4	Mehmet Demirci	Merzifon Enerji	Local	Amasya-Merzifon (Çavundur village)
5	Yalçın Üngör	Merzifon Enerji	Not Local	
6	Selim Kırış	Merzifon Enerji	Not Local	
7	Muhammet Çatal	Merzifon Enerji	Not Local	
8	Murat Ay	Merzifon Enerji	Local	Amasya-Merzifon
9	Fahri Yıldız	Merzifon Enerji	Not Local	
10	Faruk Şınaydar	Merzifon Enerji	Not Local	
11	İsmail Seyhan	Merzifon Enerji	Local	Amasya-Taşova
12	Celalettin Şahin	Akdeniz Güvenlik	Not Local	

[16] See: http://www.csgb.gov.tr/csgbPortal/cgm.portal?page=asgari for offical min. wages for 2014.

13	Ramazan Demirci	Akdeniz Güvenlik	Local	Amasya-Merzifon (Çavundur village)
14	Turgut Çalışkan	Akdeniz Güvenlik	Not Local	
15	Bekir Demirci	Akdeniz Güvenlik	Not Local	
16	Hüseyin Yeşil	Akdeniz Güvenlik	Local	Amasya-Merzifon (Kayadüzü village)

F.1.9: Balance of Payment and Investments
F.1.9.a: Monitoring Table from Passport of KAYADUZU WPP

No		9
Indicator		Balance of payment and investments
Mitigation measure		No mitigation measures are required.
Chosen parameter		Amount of avoided natural gas to be imported
Current situation of parameter		According to TEİAŞ; 21,637,605 thousand m^3 natural gas is consumed for electricity generation in 2008. In 2008 Electricity generation amount from natural gas is 98,685.3 GWh and share of natural gas in the electricity mix is 49.74%. Since Turkey imports 97% of consumed natural gas, it is calculated that for 1 GWh electricity generation 105,068 m3 natural gas is imported in 2008 (which makes around 18,625 Euro/GWh).
Estimation of baseline situation of parameter		According to the projections of TEİAŞ (See Table-5 in B.4 part of the PDD), dependency to natural gas for electricity generation will remain high till the end of 2018 with 42.7% share of the electricity mix in this year.
Future target for parameter		Avoidance of around 1.254 million m^3 natural gas import each year by generation of project activity, which is worth about 1,516,125 Euro per year[17].
Way of monitoring	How	TEİAŞ statistics for natural gas share in the electricity mix shall help to demonstrate the high import dependency. Amount of annual net electricity generation, which is calculated by monthly settlement notifications of PMUM based on monthly meter readings, will be used to calculate correspondent amount of currency saved by project activity with help of above calculated factor.
	When	Annually
	By who	Assigned technician by Plant Manager or assigned carbon consultant.

F.1.9.b: Monitoring of Balance of Payment and Investments

No	9
Indicator	Balance of Payment and investments
Remarks on the monitoring process of the parameters	Monitoring Process was handled by: Calculating the avoided payment for import of natural gas with using 18,625 EUR/GWh and net electricity generation amount during the first monitoring period, which is 224.59 GWh
Current situation of parameter	Total currency saved with electricity generation from domestic sources is 18,625 EUR/GWh * 224.59 GWh = 4.183 million EUR.
Other Data Sources	NA
Scoring of the indicator compared to Baseline	+

[17] See TEİAŞ statistics for 2008: http://www.teias.gov.tr/istatistik2008/index.htm. Detail calculation of current situation and future target is substantiated in Monitoring Plan of CM Calculation Worksheet, which is available to DOE.

SECTION G Remaining FARs from Previous Verification

As it is the first verification of KAYADUZU WPP, there is no remaining FARs from previous verification. However, there are 3 FARs in validation report. These FARs and responses are provided below.

FAR #1: First meter reading document (to be signed when the plant begins to generate electricity) of TEIAS should be seen as a proof of first calibration.

RESPONSE to FAR #1: The first meter reading document, dated 28/11/2011, is provided to DOE.

FAR # 2: Expropriation process has started for grazing areas. The status of this process should be followed in first verification.

RESPONSE to FAR #2: As it can be seen from the letter of EPDK given in Figure 8, the lands in the project area are belonging to Ministry of Finance and Forestry. Thus, there is no private land to be expropriated. Usage rights of the lands are being handled by EPDK on behalf of project owner.

T.C.
ENERJİ PİYASASI DÜZENLEME KURUMU
Kamulaştırma Dairesi Başkanlığı

Sayı : B.62.0.KDB.0.15.351.03/33.290
Konu : Taşınmaz Malları Kullanma Hakkı

15.06.2012 * 53211

ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞINA
(Enerji İşleri Genel Müdürlüğü)

Enerji Piyasası Düzenleme Kurulunun 25/12/2008 tarihli ve 1904-57 sayılı Kararı ile; Baktepe Enerji Anonim Şirketine, Amasya İlinde kurulacak olan Kayadüzü Rüzgar Elektrik Santrali üretim tesisi için 24/07/2008 tarihinden itibaren 49 yıl süreyle üretim faaliyeti göstermek üzere, 4628 sayılı Elektrik Piyasası Kanunu ve ilgili mevzuat uyarınca, 25/12/2008 tarihli ve EÜ/1904-57/1365 numaralı üretim lisansı verilmiştir.

Kayadüzü RES üretim tesisinin yerleşim yerinde, Maliye Hazinesine ait taşınmaz mallar ile Orman vasıflı taşınmaz mallar bulunmaktadır.

a) Maliye Hazinesi adına kayıtlı taşınmaz mallarla ilgili olarak irtifak hakkı tesisine ilişkin Enerji Piyasası Düzenleme Kurumunun 01/06/2012 tarihli ve 3855-10 sayılı Kurul Kararları alınmış olup, irtifak hakkı teisisine ilişkin işlemler kurumumuz tarafından yürütülmektedir.

b) Orman sahasında kalan taşınmaz mallarla ilgili olarak Orman ve Su İşleri Bakanlığı, Merzifon Orman İşletme Şefliğinden kesin izinler alınmıştır.

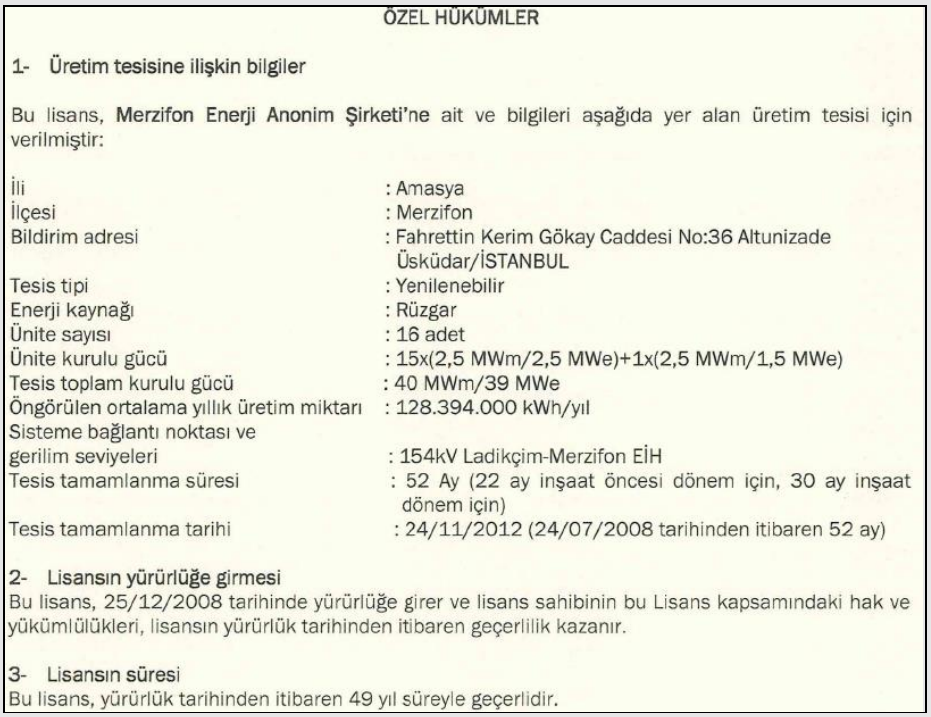
Bilgilerini ve gereğini arz ederim.

Osman BİRGİN
Başkan a.
Daire Başkanı

Figure 8 Letter of EPDK on usage of land in the project area

FAR # 3: According to item 23 of the regulation, license can be revised before commissioning. This FAR is raised to see the revised license during first verification.

RESPONSE to FAR #3: Revised licence of Kayaduzu WPP is given below:



ÖZEL HÜKÜMLER

1- Üretim tesisine ilişkin bilgiler

Bu lisans, **Merzifon Enerji Anonim Şirketi'ne** ait ve bilgileri aşağıda yer alan üretim tesisi için verilmiştir:

İli	: Amasya
İlçesi	: Merzifon
Bildirim adresi	: Fahrettin Kerim Gökay Caddesi No:36 Altunizade Üsküdar/İSTANBUL
Tesis tipi	: Yenilenebilir
Enerji kaynağı	: Rüzgar
Ünite sayısı	: 16 adet
Ünite kurulu gücü	: 15x(2,5 MWm/2,5 MWe)+1x(2,5 MWm/1,5 MWe)
Tesis toplam kurulu gücü	: 40 MWm/39 MWe
Öngörülen ortalama yıllık üretim miktarı	: 128.394.000 kWh/yıl
Sisteme bağlantı noktası ve gerilim seviyeleri	: 154kV Ladikçim-Merzifon EİH
Tesis tamamlanma süresi	: 52 Ay (22 ay inşaat öncesi dönem için, 30 ay inşaat dönem için)
Tesis tamamlanma tarihi	: 24/11/2012 (24/07/2008 tarihinden itibaren 52 ay)

2- Lisansın yürürlüğe girmesi

Bu lisans, 25/12/2008 tarihinde yürürlüğe girer ve lisans sahibinin bu Lisans kapsamındaki hak ve yükümlülükleri, lisansın yürürlük tarihinden itibaren geçerlilik kazanır.

3- Lisansın süresi

Bu lisans, yürürlük tarihinden itibaren 49 yıl süreyle geçerlidir.

Figure 9 Revised licence of Kayaduzu WPP.

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Document information

Version	*Date*	*Description*
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 anthropogenic 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.

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