GOLD STANDRAD – VOLUNTARY EMISSIN REDUCTION
3RD PERIODIC MONITORING REPORT
Version 02 on 11.05.2012

Keltepe Wind Farm Project - Turkey
Gold Standard Project ID: GS437
Monitoring Period 01/05/2011 – 30/04/2012 (first and last days included)

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SECTION A. General description of the project activity

A.1. Brief description of the project activity: >>

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The Keltepe Wind Farm Project activity (also referred as Keltepe Project) comprises the operation of a 20.7 MW onshore wind farm in the Balıkesir Province in Turkey. The generated electricity is delivered to the national grid. The project consists of 23 units of E44 turbines with an installed capacity of 900 kW each. The generated electricity is delivered to the grid at 34.5 kV MV Göbel transformer stations. The project helps reduce GHG emissions generated from the national grid, which is significantly based on fossil fuel electricity generation.

The project installation is finished according to the description in the PDD and completely operational. Relevant dates for the project activity are as followed:

Table 1 Major milestones of the project activity

Date	Milestone
01/07/2008	Start of construction
04/12/2008	Validation of Project Activity
10/07/2009	Start of operation
10/07/2009	Start of first crediting period and first monitoring period
18/09/2009	Gold Standard registration of the Project Activity
28/02/2010	End of first monitoring period
01/03/2010 – 30/04/2011	Second monitoring period
01/05/2011 – 30/04/2012	Third monitoring period

During this monitoring period from 01/05/2011 – 30/04/2012, the total emission reduction achieved is 45,404 tCO_2-eq.

A.2. Project Participants

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Name of Party Involved	Private and/or public entity(ies) project participants	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Turkey (Host Country)	Alize Enerji Elektrik Üretim A.Ş.	No

A.3. Location of the project activity:

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The Keltepe Wind Farm Project is located in Balıkesir-Susurluk Region, Turkey.
The geographical coordinates of Keltepe Wind Farm is $39^0$57' N $28^0$02' E.



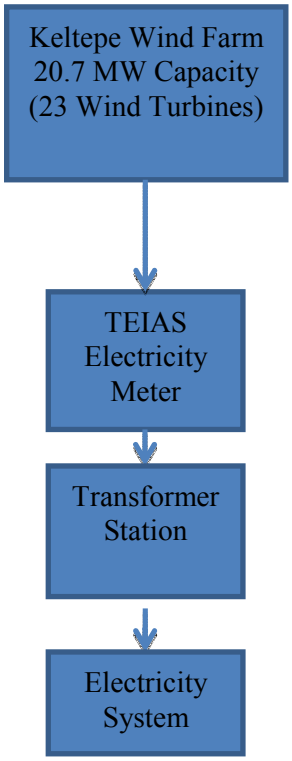
A.4. Technical description of the project

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The project involves electricity generation from 23 units of E44 wind turbines. Each unit has an installed capacity of 900 kW reaching to a total installed capacity of 20.7 MW. The installed turbines are direct drive turbines manufactured by Enercon GmbH.

Table 2 Technical details of installed turbines

Model of turbine	Rated power [kW]	Number of blades	Rotor diameter [m]	Rotor swept area [m^2]	Hub height [m]
E44	900	3	44	1,521	55



A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

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- Approved baseline methodology ACM0002 "Consolidated baseline methodology for grid connected electricity generation from renewable sources", version 7
- "Tool for the demonstration and assessment of additionality" version 04
- "Tool to calculate the emission factor for an electricity system" version 01

For more information regarding methodologies please refer to
http://cdm.unfccc.int/methodologies/index.html

The project activity was also developed and registered as a Gold Standard VER project. The following Gold Standard rules are applicable to the project activity:

GS-VER Project Developers Manual (also referred as GS v1 documents)

For more information regarding Gold Standard please refer to
http://www.cdmgoldstandard.org/Gold-Standard-Version-1.338.0.html

A.6. Registration date of the project activity:

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The project was registered on 18/09/2009 under the Gold Standard registry with the registration number GS 437.

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

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The project was validated on 04/12/2008 with a renewable crediting period. The first crediting period is from 10/07/2009 to 09/07/2016.

A.8. Name of responsible person(s)/entity(ies):

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Name of the person/entity completing the monitoring report:
Mr. Ömer Akyürek
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OakDanışmanlık is the carbon consultant for the project activity.

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

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The commissioning date of the project activity was 10/07/2009. The project activity consists of only one site with no phased implementation. There were no special events, emergency reported or any changes regarding the employment structure for the project during the 3rd monitoring period between 01/05/2011 – 30/04/2012.

B.2. Revision of the monitoring plan

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No revisions to the registered monitoring plan are required.

B.3. Request for deviation applied to this monitoring period

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There are no requests for deviation applied to this monitoring period.

B.4. Notification or request of approval of changes

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No notification or request of approval of changes has been made.

SECTION C. Description of the monitoring system

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C.1 Data processing and archiving:

Data handling was carried out according to the description in the PDD. Both TEİAŞ and project responsible perform data readings each month. TEIAŞ performs monthly reading through OSOS system remotely. The results of the readings were saved electronically and made available by TEİAŞ via a website.

The project participants also archived a hardcopy of meter reading protocols, scanned them and stored them. The collected data will be kept by the Project Participant during the crediting period and stored at least two years after the issuance of VER credits.

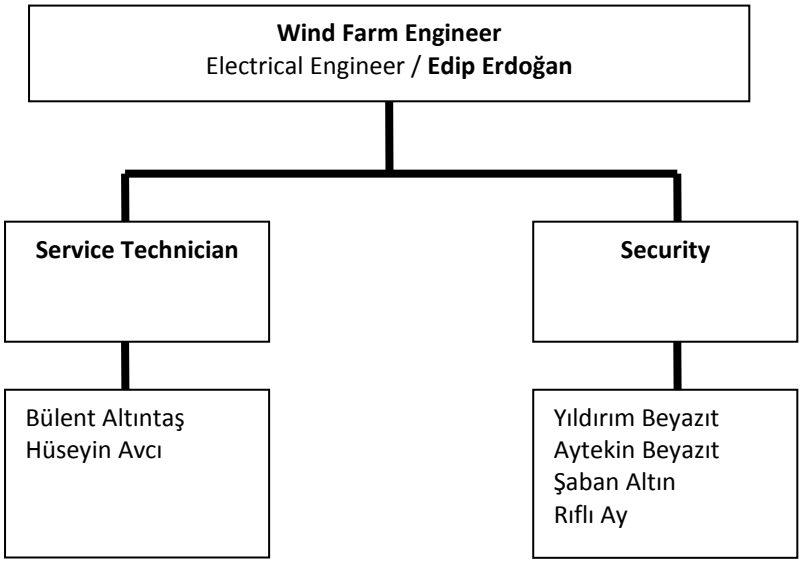
C.2 Special event log:

There were no special events during the third monitoring period.

C.3 Roles and responsibilities:

Roles and responsibilities have been summarized in the following chart.

Keltepe Wind Farm / Organization Chart



C.4 Trainings:

Management of training procedures is decentralized. In general the training topics could be summarized as followed:

i) First Aid Training: If deemed necessary, first aid training is provided to the selected staff. This training covers generally the basic knowledge and skills to be applied to sick and injured people.

ii) Safety Trainings: Trainings on occupational safety, which is provided by Mr. Faruk Ecevit (Health and Safety Officer).

iii) Technical Trainings: SQA Department of Enercon GmbH Service Dispatch is the only responsible body that is able to give technical trainings on Enercon equipment. SQA Department has adopted a regional approach and has planned their training services based on the regions. These trainings are only oriented for Service Technicians.

C.5 Internal audits and control measures

The internal control procedures maintain the reliability and accuracy in the data transfer and calculations. The plant personal records the data on regular basis from both meters and compares the values for consistency. The responsible engineer performs regular checks of this procedure each month and controls the monthly data of main and second meters. If any difference occurs between the two meters, TEİAŞ has to be informed for further actions. Furthermore, the plant engineer shares the monthly data with Ms. Çağla Balcı Eriş for the control and data storage.

Reliability and accuracy of monthly values is reached by comparative readings both from the project participant and TEİAŞ, where high accuracy is guaranteed and needed by the requirements of billing purposes.

C.6 Troubleshooting procedures:

As the measuring devices are sealed by TEİAŞ, project participant cannot intervene with the devices. In case of unforeseen problems or failures of the meters or if any difference occurs between primary and secondary devices TEİAŞ has to be informed for further actions.

SECTION D. Data and parameters

D.1 Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors:

Data / Parameter:	**EF**
Data unit:	tCO_2-eq/MWh
Description:	Emission factor of the Turkish grid
Source of data used:	Keltepe Wind Farm Project PDD registered under GS (GS437)
Value(s) :	0.644
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Additional comment:	The emission factor of the Turkish grid is calculated ex-ante and has been fixed for the first crediting period.

Data / Parameter:	**NCV Diesel**
Data unit:	GJ/L
Description:	Net Calorific Value of diesel
Source of data used:	Keltepe Wind Farm Project PDD registered under GS (GS437)
Value(s) :	0.0366
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Additional comment:	

Data / Parameter:	**$EF_{CO2,Diesel}$**
Data unit:	tCO_2-eq/GJ
Description:	CO_2 emission factor of diesel
Source of data used:	Keltepe Wind Farm Project PDD registered under GS (GS437)
Value(s) :	0.074
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Additional comment:	

D.2 Data and parameters monitored:

Data / Parameter:	**EG_y**
Data unit:	MWh
Description:	Electricity supplied by the project activity to the grid
Measured /Calculated /Default:	Measured
Source of data:	Electricity meter readings
Value(s) of monitored parameter:	70,504.393
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Information of the meters are listed as followed: Electricity Meter (Primary): Manufacturer: Schlumberger; Model: SL7000; Serial number: 53031748; Date of installation: 12/08/2009; Date of initial calibration: 12/08/2009; Accuracy: 0.5s (active) Electricity Meter (Secondary): Manufacturer: Schlumberger; Model: SL7000; Serial number: 53031749; Date of installation: 12/08/2009; Date of initial calibration: 12/08/2009; Accuracy: 0.5s (active) The calibration of the monitoring equipment was carried out according to the information provided in the PDD. The calibrations are valid for 10 years. The PDD mainly includes the following obligation for the calibration of the appropriate meters: *"TEİAŞ is responsible for calibration and maintenance of the devices. If any difference occurs between primary and secondary device TEİAŞ performs necessary and calibration"*
Measuring/ Reading/ Recording frequency:	Continuous measurement and monthly reading.
Calculation method (if applicable):	n.a.
QA/QC procedures applied:	Both the project participant and TEİAŞ perform the readings. TEIAŞ

	readings are performed via OSOS system (Automatic Meter Reading System) remotely.

Data / Parameter:	**FC_Diesel**
Data unit:	L (liters)
Description:	Diesel consumption of the auxiliary power unit
Measured /Calculated /Default:	Measured
Source of data:	Diesel consumption of the auxiliary power unit
Value(s) of monitored parameter:	390.63
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	n.a.
Measuring/ Reading/ Recording frequency:	The consumption of diesel used by the auxiliary power unit will be monitored by collecting invoices of diesel purchase.
Calculation method (if applicable):	n.a.
QA/QC procedures applied:	n.a.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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The baseline emission BE_y (tCO_2eq) during the monitoring period results from:

$$BE = EF * EG \quad \textbf{(1)}$$

Where:

BE = Baseline emissions in tones CO_2-eq
EF = Grid emission factor in tCO_2-eq/MWh (a value of 0.644 tCO_2-eq/MWh has been fixed during the first crediting period)
EG = Electricity supplied to the grid in MWh

The baseline emissions for the project activity according to the PDD are included in the following table:

Table 3 Baseline emissions

Month	(A) Electricity supplied to the grid [MWh]	(B) Electricity consumption from the grid [MWh]	(C)=(A)-(B) Net electricity supplied to the grid [MWh]	Baseline emissions (equation 2) [tCO_2-eq]
May 2011	4,792.239	2.620	4,789.619	3,084.51
June 2011	3,940.648	3.553	3,937.095	2,535.49
July 2011	4,715.778	2.243	4,713.535	3,035.52
August 2011	9,126.300	0.668	9,125.632	5,876.91
September 2011	6,929.926	0.846	6,929.080	4,462.33
October 2011	7,884.498	3.516	7,880.982	5,075.35
November 2011	7,826.675	2.461	7,824.214	5,038.79
December 2011	6,905.190	6.911	6,898.279	4,442.49
January 2012	4,093.288	26.534	4,066.754	2,618.99
February 2012	2,418.025	27.629	2,390.396	1,539.42
March 2012	3,769.584	6.209	3,763.375	2,423.61
April 2012	8,186.962	1.530	8,185.432	5,271.42
Sum (01/05/2011 – 31/12/2011)	52,121.254	22.818	52,098.436	33,551.39
Sum (01/01/2012 – 30/04/2012)	18,467.859	61.902	18,405.957	11,853.44
Sum 3rd Monitoring Period (01/05/2011 – 30/04/2012)	70,589.113	84.720	70,504.393	45,404.83

E.2. Project emissions calculation

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Project emissions are negligible; however the auxiliary emissions will be monitored and reported.

In accordance to the registered PDD, the auxiliary emissions are calculated as followed.

$$PE = FC_{Diesel} * NVC_{Diesel} * EF_{CO2Diesel} \quad \textbf{(2)}$$

Where:

PE = Project emissions due to auxiliary power unit in tCO_2-eq
FC_{Diesel} = Consumption of diesel in auxiliary power unit in L
NCV_{Diesel} = Net Calorific Value of Diesel in GJ/L
$EF_{CO2Diesel}$ = CO_2 emission factor of diesel tCO_2-eq/GJ

According to the invoices, 390.63 liters of diesel have been used for the auxiliary generator. The auxiliary emissions could be calculated in accordance to equation 2:

FC_{Diesel}	390.63 L
NCV_{Diesel}	0.0366 GJ/L
$EF_{CO2Diesel}$	0.074 tCO_2-eq/GJ
PE	1.06 tCO_2-eq

As PE<<1%BE, the project emissions are negligible and considered to be 0.

PE=0 **tCO_2-eq**

E.3. Leakage calculation

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No leakage is to be accounted by the Project. This is in line with the registered PDD and applicable methodology ACM0002 version 7. Therefore;

L= 0 tCO_2-eq

E.4. Emission reductions calculation / table

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The total emission reductions can be calculated with the results of the below described equation:

$$ER = BE - PE - L \quad \textbf{(2)}$$

Where:
ER = Emission reductions in tCO_2-eq
BE = Baseline emissions in tCO_2-eq
PE = Project emissions in tCO_2-eq
L = Leakage emissions in tCO_2-eq

Total baseline emissions (BE): 45,404tCO_2-eq
Total project emissions (PE): 0 tCO_2-eq
Total leakage (L): 0 tCO_2-eq

It can be followed that the emission reductions of the project activity is equal to the baseline emissions. The emission reductions per vintage and for the period which is covered by this monitoring report are therefore:

Table 4 Emission reductions for 3rd monitoring period

Vintage 2011 (01/05/2011 – 31/12/2011)	33,551.39 tCO_2-eq
Vintage 2012 (01/01/2012 – 30/04/2012)	11,853.44 tCO_2-eq
Total emission reductions for 3rd Monitoring Period (01/05/2011 – 30/04/2012)	45,404 tCO_2-eq[1]

[1] The total emission reduction value has been rounded down for conservativeness.

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

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This section shall include a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered CDM-PDD.

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	46,501 tCO_2-eq	45,404 tCO_2-eq

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

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The ex-ante estimated yearly volume in the PDD is 46,501 tCO_2-eq. The ex-post achievements are slightly lower but consistent with performance monitored during the previous years of operation.

SECTION F. Gold Standard Sustainable Development Indicators

According to the requirements of Gold Standard, the project activity must be assessed against a matrix of sustainable development indicators. The contribution of the proposed project activity to the sustainable development of the country is based on indicators of local/global environment sustainability, social sustainability & development and economic & technological development.

With regards to the project activity, two indicators were added to the monitoring plan. All documents regarding these additional parameters can be presented to the DOE during verification process:

SDI 1: Water Quality

Description:	Documents proving the disposal of waste water

The project includes a wastewater tank and the monitoring consists of recording the bills related to emptying the tank. Due to its large size the wastewater tank has a high capacity and it was not necessary to empty the tank within the 3rd crediting period.

SDI 2: Employment (job quality)

Description:	Number of employees trained with issued certificates.

Bülent Altıntaş, Edip Erdoğan and Hüseyin Avcı have participated in several trainings during the monitoring period. The details on trainings are summarized as followed:

Table 5 Trainings during the 3rd monitoring period

Name/Surname	Position	Training given by	Subject	Date	Record	Content
Bülent Altıntaş	Service Technician	Enercon SQA	Technical Training(2)	06.06.2011	Certificate	Power conversion systems / Generators / Power Cabin Equipment / Engine Room Equipment / Rotor, Stator and Distribution Systems / Control Systems / Database and Service Reports / Circuits
Bülent Altıntaş	Service Technician	Faruk Ecevit	Occupational Safety	09.08.2011	Certificate	Rescue equipment / Safety equipment for falling / Lift

						equipment and maintenance / Personal safety equipment / Occupational health and safety signs / Emergency plan and emergency call operations / ISG operational instructions / Evacuation from Nacell / Man rescue from Spinner / Rescue from emergency ladder / Working with safety rope on Nacell
Edip Erdoğan	Responsible Engineer	Enercon SQA	Technical Training(2)	06.06.2011	Certificate	Power conversion systems / Generators / Power Cabin Equipment / Engine Room Equipment / Rotor, Stator and Distribution Systems / Control Systems / Database and Service Reports / Circuits
Edip Erdoğan	Responsible Engineer	Faruk Ecevit	Occupational Safety	20.07.2011	Certificate	Legal requirements and regulations / overview about the used system at Enercon / Check PPP against falls / Documentation
Edip Erdoğan	Responsible Engineer	Faruk Ecevit	Occupational Safety	09.08.2011	Certificate	Rescue equipment / Safety equipment for falling / Lift equipment and maintenance / Personal safety equipment / Occupational health and safety signs / Emergency plan and emergency call operations / ISG operational instructions / Evacuation from Nacell / Man rescue from Spinner / Rescue from emergency ladder / Working with safety rope on Nacell
Hüseyin Avcı	Service Technician	Enercon SQA	Technical Training(2)	06.06.2011	Certificate	Power conversion systems / Generators / Power Cabin Equipment / Engine Room Equipment / Rotor, Stator and Distribution Systems / Control Systems / Database and Service Reports / Circuits
Hüseyin Avcı	Service Technician	Faruk Ecevit	Occupational Safety	09.08.2011	Certificate	Rescue equipment / Safety equipment for falling / Lift equipment and maintenance / Personal safety equipment / Occupational health and safety signs / Emergency plan and emergency call operations / ISG operational instructions / Evacuation from Nacell / Man rescue from Spinner / Rescue from emergency ladder / Working with safety rope on Nacell

Note: General Training on Wind Energy Turbines provided by Enercon SQA department is referred as Technical (1) and Specific Training on Wind Energy Turbines provided by Enercon SQA department is referred as Technical (2)

SDI 3: Employment (quantity)

Description:	Number of employment created by the project monitored by the monthly salary payment sheets.

It could be shown that the project activity creates a respectable number of permanent and high qualified jobs. Currently 7 full time positions are directly related to the project activity (1 engineer, 2 positions for service technicians and 4 positions for security personal).

A detailed organizational chart has been provided under section C.3 of this report.

SECTION G. Open Issues from Previous Verification

No Forward Action Requests (FAR) was formulated in the verification final report covering the 3rd monitoring period.

ANNEX 1

Definitions & Acronyms

ACM	**Approved Consolidated Methodology**
CDM	**Clean Development Mechanism**
DOE	**Designated Operational Entity**
EPDK	**Electricity Market Regulatory Authority**
GHG	**Green House Gases**
GS	**Gold Standard**
GPRS	**General Packet Radio Service**
IPCC	**Intergovernmental Panel on Climate Change**
OSOS	**Automatic Meter Reading System**
PDD	**Project Design Document**
PP	**Project Participant**
tCO_2-eq	**Amount of greenhouse gases emission equivalent to the emission of one ton of carbon dioxide**
TEİAŞ	**Turkish Electricity Transmission Company**
UNFCCC	**United Nations Framework Convention on Climate Change**
VER	**Verified Emission Reductions**