MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

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* as contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).

MONITORING REPORT
Version 4.0 of 04/06/2012

Akbük Wind Farm Project --- Turkey
GS VER project, reference GS 436
Third monitoring period, 01.04.2011-31.12.2011 (first and last days included)

SECTION A. General description of the project activity

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

1. Purpose of the project activity and the measures taken to reduce greenhouse gas emissions;

The Akbük Wind Farm Project involves a 31.5 MW onshore wind farm in the region of Aydın Province, Didim District in Turkey. The generated electricity is delivered to the Turkish national grid, and it reduced therefore the greenhouse gases emissions that would have else happened through the operation of the existing and new Turkish grid connected power plants (as described in the ex-ante calculation of emission factor of the grid).

2. Brief description of the installed technology and equipments;

The Project comprises 15 turbines of 2.1 MW each and a high voltage transmission line between the project area and the national grid.

3. Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.).

30.06.2008: start of construction
19.03.2009: commissioning of phase 1 (first 8 turbines)
03.04.2009: commissioning of phase 2 (remaining 7 turbines)

4. Total emission reductions achieved in this monitoring period.

A net electricity of 76,150 MWh is produced by the project activity in the current monitoring period and it is delivered to the national grid. The corresponding emission reductions are calculated as 48,922 tCO_2-eq.

A.2. Project Participants

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Represented by Mr. Hakan Demir, hakand@ayen.com.tr

A.3. Location of the project activity:

The Akbük Wind Farm Project is located in Aydın Province, Didim District. The project area is 30 km away from the Didim District centre. The closest residential area is 2.5 km away from the project location where several summer houses are located. The project area is not favourable for agricultural use and there are no private owned lands within the project boundary.

Figure 1. General map of Turkey and identification of the project area

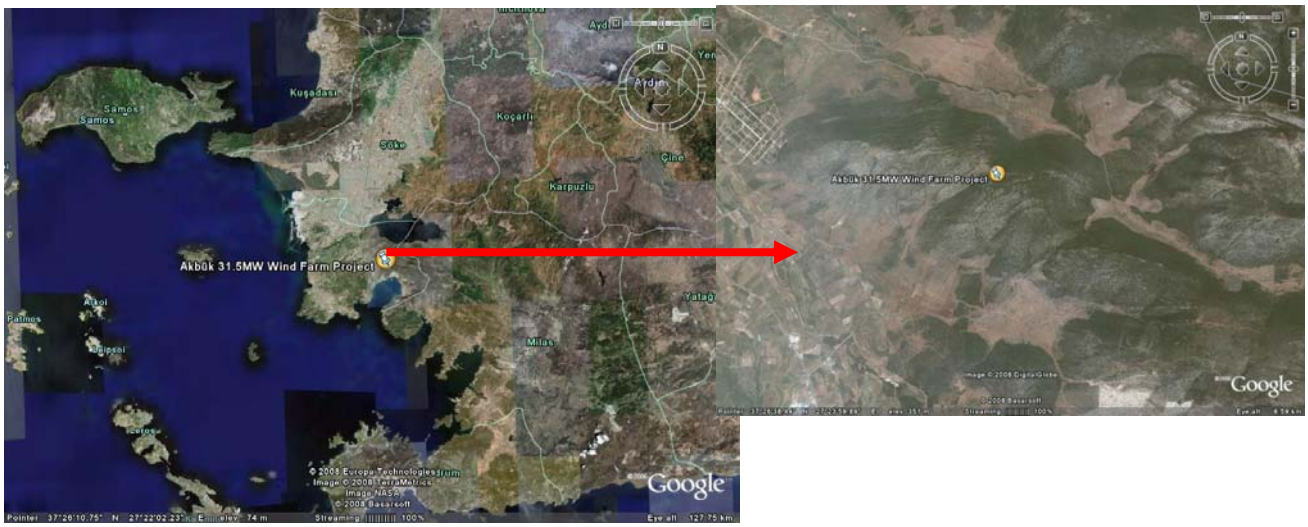

Figure 2. Map of Didim District and the project location (37026'53.70" E / 27023'53.95" N)

A.4. Technical description of the project

Wind turbines

The selected wind turbines are SUZLON S88 model turbines with 2.1 MW capacity each. Technical description of turbines is presented in more detail in table 1 below.

Table 1: Technical details of SUZLON wind turbines[1]

Model of turbine	Rated power [kW]	Number of blades	Rotor diameter [m]	Rotor swept area [m^2]	Hub height [m]
S88	2100	3 Horizontal axis	88	6082	79

[1] Reference: www.suzlon.com

Turbines have been transported from India to the project site. However, the other components (such as transformers, switchboards, substation components, cabling) have been supplied from local manufacturers.

Grid connection
The proposed project activity further involves the development of a connection to the national grid. The grid connection consists of 2.7 km transmission line. The sub transformer station at the project area, is connected to the 154 kV HV national grid from Akbük transformer station.

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

Approved consolidated baseline and monitoring methodology ACM0002

"Consolidated baseline methodology for grid connected electricity generation from renewable sources"[2] version 7, scope 1.

A.6. Registration date of the project activity:

17.03.2009

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

According to the registered PDD, the 7-year renewable crediting period starts on 7th of November 2008. Due to a later commissioning, this starting date has been postponed to 19th of March 2009 and a notification of this change was sent to Gold Standards.

Therefore the new dates of the crediting period are: 19.03.2009-18.03.2016.

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

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[2] http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_323M30IDF1IH6AG3GRCJ4PKR9CKM7P

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

The starting date of operation of the project activity is described in the following table. The activity was fully commissioned during the first monitoring period and therefore the project is completely started in the third monitoring period, covered by the present report.

Table 2: Status of implementation

Date	Milestone
30.06.2008	Start of construction
19.03.2009	Start of operation and commissioning of the first eight turbines (ID no. 1, 2, 3, 4, 5, 6, 10 and 15)
03.04.2009	Start of operation and commissioning of the remaining seven turbines (ID no. 7, 8, 9, 11, 12, 13 and 14)

The project is completely implemented and operational since 03.04.2009. The table above provides information on the two step implementation phase of the project. In a first step, from 19.03.09 eight of the turbines were operational and in the second step on 03.04.2009 the remaining seven turbines were commissioned and started operation.

During the third monitoring period, only a few events happened and they are documented in the following table:

Table 3: Special event log

DESCRIPTION	DATE	ID NUMBER OF STOPPED TURBINE	DURATION (Hours)
FSS-fault (Change of the Slipring Brushes)	12/04/2011	6	33
Change of the Rotor Bolt	20/06/2011	3	240
Recurring Pitch System Fault	01/09/2011	13	24

These events do not impact the applicability of the methodology. These situations were addressed according to the internal operational procedures.

B.2. Revision of the monitoring plan

Not applicable

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

Not applicable

B.4. Notification or request of approval of changes

Not applicable

SECTION C. Description of the monitoring system

Data processing and archiving: The data processing and archiving was performed in accordance with the PDD. The officials from TEIAŞ performed monthly the measurements for both the primary and secondary device, under the control of the plant personnel of Ayen. A reading protocol was signed by both parties. An invoice (receipt of sale) is prepared by Ayen and delivered to TEIAŞ.

Metering: The delivered electricity is being metered at 154 kV high voltage side of the step up transformer (154/34,5kV) installed at the project site. The meters measure the net electricity delivered to the grid, which is the data used in emission reduction calculations. The losses before this point will be on the account of the project owner.

Meter readings: Officials from TEIAS (Turkish Electricity Transmission Company) perform data readings under the surveillance of responsible staff from the project participant for the devices on a periodic basis. A meter reading report is prepared by TEIAS and delivered to Ayen Enerji for each month.

Roles and responsibilities
For Ayen Enerji Mr. Hakan Demir is responsible for monitoring issues within the project.

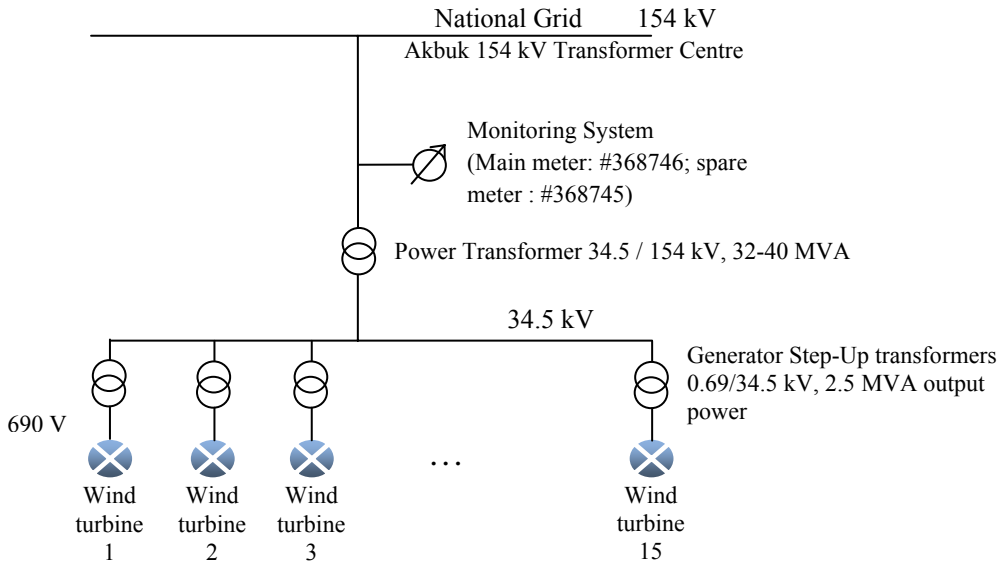
Involvement of third parties
Support and consultancy regarding the Gold Standard VER obligations is provided by OneCarbon International B.V., a company purchased by ORBEO.

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

Furthermore, a logbook (table 3 of section B1) is written all the time where observations (in general, not only related to the meters) and all other information necessary to document are included.

Monitoring Points
In the simple diagram below, the position of the wind turbines, the transformer and the monitoring system is displayed, as a response to the Forwarding Action Request raised by Gold Standard during the second verification period.[3]

[3] During the 2 week review period for the second verification, the following Forward Action Request has been raised by Gold Standard: "The PP shall include a simple diagram of the monitoring points, i.e. transmission lines, primary and secondary electricity meters, transformers, turbines, in future monitoring reports."



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	
(Copy this table for each data and parameter. To report multiple values, a table may be used)	
Data / Parameter:	ID.8: $EF_{grid, CM}$
Data unit:	tCO_2e/MWh
Description:	Combined Margin emission factor
Source of data used:	Registered PDD, choice of ex-ante option.
Value(s) :	0.644
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emissions
Additional comment:	

D.2. Data and parameters monitored	
(Copy this table for each data and parameter. To report multiple values, a table may be used)	
Data / Parameter:	ID.9: EG_y
Data unit:	MWh
Description:	Net electricity supplied by the Project to the grid
Measured /Calculated /Default:	Measured
Source of data:	Monitoring equipment and their monthly reading protocols
Value(s) of monitored parameter:	76,150.57 MWh
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for baseline emission
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Bi-directional meters Manufacturer: ELSTER Messtechnik GmbH Type: 3x58/100V...3x240/415V& 50Hz, 5A, tm=15min serial numbers: Main meter: 368746 Back up meter: 368745 Accuracy class: 0.2s

	Calibration frequency: according to national requirements Date of last calibration: - by ELSTER on 18/06/2008 Validity: 5 years Routine test protocols of the meters by TEIAS - on 19/03/2010 - and on 20/01/2011 There were no additional test routines in this 9-month verification period
Measuring/ Reading/ Recording frequency:	Read on monthly protocols
Calculation method (if applicable):	According to equation (3), the net electricity of the facility is the difference of the electricity exported to the grid and imported from the grid.
QA/QC procedures applied:	The monthly reading is in presence of both parties, Ayen Enerji and TEIAS. Both parties sign the protocol, and the measured value is used for preparation of invoices. The presence of both parties serves the Quality Assurance.

According to the requirements of the 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 environmental sustainability, social sustainability & development and economic & technological development.
Three indicators were added to the monitoring plan. All documents regarding these additional parameters have been presented to the DOE during the on-site visit:

Table 4: Data concerning Gold Standard sustainability parameters

Identification Code	**Parameter**	**Unit**	**Description**
SDI 6	Employment (Quality)	-	The number of trainings provided as an improvement of the employment quality
SDI 7	Livelihood of the poor (Access to essential services)	Contracts	The building of a new bazaar area at Akyeniköy is a measure to improve the livelihood of the poor
SDI 10	Employment (Numbers)	Contracts	Jobs are created due to the project activity

Data / Parameter:	**SDI.6 / Employment (Quality)**
Data unit:	-
Description:	List and attendance of trainings
Measured /Calculated /Default:	/
Source of data:	The number of trainings and attendance of employees will be monitored by documents.

<table>
<tr><td>Value(s) of monitored parameter:</td><td>Training and attendance certificates are available to the DOE during the on-site visit. In addition to the trainings that took place during the period covered by the first and second verification, there were two training sessions on December 16th 2011 within this third verification period:
<table>
<tr><th>Date</th><th>Type of Training</th><th>Attendees</th><th>Training Entity</th></tr>
<tr><td>16 Dec 11</td><td>Occupational Risks, Occupational Health and Safety Training</td><td>14 staff</td><td>Sonas</td></tr>
<tr><td>16 Dec 11</td><td>Fire and Fire Protection Theoretical and Applied Training</td><td>14 staff</td><td>Sonas</td></tr>
</table></td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>Sustainability monitoring parameters</td></tr>
<tr><td>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</td><td>/</td></tr>
<tr><td>Measuring/ Reading/ Recording frequency:</td><td>/</td></tr>
<tr><td>Calculation method (if applicable):</td><td>/</td></tr>
<tr><td>QA/QC procedures applied:</td><td></td></tr>
</table>

Data / Parameter:	**SDI.7 / Livelihood of the poor**
Data unit:	-
Description:	*The building of a new bazaar area at Akyeniköy* Ayen financed the building of the new bazaar area at Akyeniköy Municipality. The construction of the bazaar took place between May 2008 and autumn 2008.
Measured /Calculated /Default:	/
Source of data:	According to the registered PPD, this parameter should be verified only during the 1st verification. The source of data is the verification report of the first monitoring period.
Value(s) of monitored parameter:	This new bazaar area is a significant improvement for the local people of Akyeniköy as there was no dedicated bazaar area available before. On certain days of the week people used empty street sides to open their stalls. Only after the construction of the bazaar area the Akyeniköy community is in possession of an area for trading, which is a contribution to the livelihood of the poor.

	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Sustainability monitoring parameters
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	/
Measuring/ Reading/ Recording frequency:	/
Calculation method (if applicable):	/
QA/QC procedures applied:	

Data / Parameter:	**SDI.10 / Employment (quantity)**
Data unit:	-
Description:	Number of jobs created
Measured /Calculated /Default:	/
Source of data:	*The monthly salary payment sheet or the web portal of the Social Security Institution SSK.*
Value(s) of monitored parameter:	Ayen established work for currently 15 employees; one engineer in charge, one personnel manager, six technicians serving as operators, one driver and six security guards. The project employs in particular local employees and contributes therefore to sustainable development as nine persons come from the nearby area.

Period	Number of people employed by Ayen in specific period, as per end of March of the year:
19 Mar 09 – 31 Mar 10	17
01 Apr 10 – 31 Mar 11	18
01 Apr 11 – 31 Dec 11	**15**

Two of the employees leaving during the last verification period have been re-employed in other positions of Ayen Enerji A.S..

Please note that all jobs were created explicitly by the project activity and that in the baseline situation the Akbük wind farm would not have been built as the installation of the wind farm would not be possible without the revenues from the sales of the voluntary

	emission reductions issued by the Gold Standard.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Sustainability monitoring parameters
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	/
Measuring/ Reading/ Recording frequency:	/
Calculation method (if applicable):	/
QA/QC procedures applied:	

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

According to the applied methodology version, the baseline emissions are calculated as the electricity supplied to the grid multiplied by the grid emission factor.

$ER_y = BE_y = EF_{grid,CM} * EG_y$ **(2)**

Where:
BE_y = Baseline emissions in tonnes CO_2-eq
$EF_{grid,CM}$ = Grid emission factor in tCO_2-eq/MWh (ID 8)
EG_y = Electricity supplied to the Grid in MWh (ID 9)

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

$EG_y = EG_{export} - EG_{import}$ **(3)**

Where:
EG_y = Net electricity supplied to the Grid in MWh (ID 9)
EG_{export} = Electricity supplied to the Grid in MWh
EG_{import} = Electricity consumption from the Grid in MWh

Table 5: Baseline emissions during this monitoring period

Year	Month	(A) Electricity supplied to the grid [MWh]	(B) Electricity consumption from the grid [MWh]	(C) = (A) - (B) EG (ID 9) Net electricity supplied to the grid [MWh]	Baseline emission: BE = EG * EF [t CO_2e]
2011	April 2011	7,186.76	21.34	7,165.42	**4,614.53**
	May 2011	6,305.75	32.76	6,272.99	**4,039.81**
	June 2011	6,429.81	16.68	6,413.13	**4,130.06**
	July 2011	7,742.79	15.49	7,727.30	**4,976.38**
	August 2011	10,209.88	12.73	10,197.15	**6,566.96**
	September 2011	7,645.83	25.88	7,619.95	**4,907.25**
	October 2011	8,947.71	18.08	8,929.63	**5,750.68**
	November 2011	11,290.23	16.51	11,273.72	**7,260.28**
	December 2011	10,391.81	23.87	10,367.94	**6,676.95**
Total 01.04.2011 until 31.12.2011:		**76,150.57**	**183.34**	**75,967.23**	**48,922.90**

E.2. Project emissions calculation

Project emissions are negligible.

E.3. Leakage calculation

No leakage has to be taken into account

E.4. Emission reductions calculation / table

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

$ER_y = BE_y – PE_y - LE_y$ **(1)**

Where:

ER_y = Emission reduction in year y (tCO_2e/yr)
BE_y = Baseline emissions in year y (tCO_2e/yr)
PE_y = Project emissions in year y (tCO_2e/yr)
LE_y = Leakage in year y (tCO_2e/yr)

Table 6: Emission Reductions during this monitoring period

Month	Baseline emission (BE) [t CO_2e]	Project emission (PE) [t CO_2e]	Leakage emission (LE) [t CO_2e]	Emission Reduction: ER = BE-PE-LE [t CO_2e]
April 2011	4,614.53	0.00	0.00	4,614.53
May 2011	4,039.81	0.00	0.00	4,039.81
June 2011	4,130.06	0.00	0.00	4,130.06
July 2011	4,976.38	0.00	0.00	4,976.38
August 2011	6,566.96	0.00	0.00	6,566.96
September 2011	4,907.25	0.00	0.00	4,907.25
October 2011	5,750.68	0.00	0.00	5,750.68
November 2011	7,260.28	0.00	0.00	7,260.28
December 2011	6,676.95	0.00	0.00	6,676.95
Total 01.04.2011 until 31.12.2011:	**48,922.90**	0.00	0.00	**48,922.90**

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

The following table compares 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)	**50,909**	**48,922**

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

According to the PDD a volume of 67,570 tCO_2e was expected to be reduced by the project activity per year. Therefore a volume of 50,909 tCO_2e was expected for the current monitoring period of 9 months / 275 days. The project in operation reached 48,922 tCO_2e in this period, which is almost exactly in line with the PDD and the expectations.

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History of the document

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory **Document Type**: Guideline, Form **Business Function**: Issuance		