GOLD STANDARD – VOLUNTARY EMISSION REDUCTION SECOND MONITORING REPORT

GRID CONNECTED ELECTRICITY GENERATION FROM RENEWABLE SOURCES: ÇATALCA 60 MW WIND POWER PROJECT, TURKEY

Monitoring Period: 01/05/2009 – 30/04/2010

Completion of the Project: 2.8. Version, 17 August 2010

By FutureCamp Türkiye

Project Owner:

ERTÜRK ELEKTRİK ÜRETİM A.Ş

CONTENTS

Annex

SECTION A GENERAL PROJECT ACTIVITY

This second monitoring report was prepared to report emission reductions generated by Çatalca 60 MW Wind Power Project in the second Monitoring Period as follow: **01/05/2009 – 30/04/2010**

A.1. Title of the Project Activity

"Grid-connected electricity generation from renewable sources: Çatalca 60 MW Wind Power Project, Turkey"

A.2. Gold Standard Registration

Validation date: 15 May 2008
Registration date: 27 Aug 2008

A.3. Short Description of the Project Activity

Ertürk Elektrik Üretim AŞ (in the following: Ertürk) installed a 60 MW wind power plant in Çatalca district of İstanbul in Turkey. The purpose of the project is to generate electricity and to feed it into the public grid. By replacing fossil fuel power generation, the greenhouse gas emission in Turkey is reduced. Çatalca WPP consists of 20 wind turbines Vestas V90 of the 3 MW output, 90m rotor diameter and 80m hub height.

A.4. Monitoring Period

Monitoring period covered by this report: 01/05/2009 – 30/04/2010 (both days are included)

A.5. Methodology Applied to the Project Activity

The reference for Baseline and Monitoring methodology is the following;

"Consolidated baseline methodology for grid-connected electricity generation from renewable sources (ACM0002) Version 06"[1]

A.6. Status of Implementation Including Time Table for Major Project Parts

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:

Date	Milestone
21.09.2007	Initial Stakeholder Consultation in Elbasan Village
15.05.2008	Final Validation Report
22.05.2008	Completion of the installation

[1] http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_BW759ID58ST5YEEV6WUCN5744MN763

16.06.2008	Commissioning of the first four turbines: Start of the first crediting period and first monitoring period
19.07.2008	Commissioning of 13 turbines
27.08.2008	Gold Standard Registration
27.12.2008	Commissioning of the last three turbines
30.04.2009	End of the first monitoring period
30.04.2010	End of the second monitoring period

A.7. Intended Deviations or Revisions to the Registered GS-VER PDD or Monitoring Plan

No deviations to the monitoring procedure documented in the registered monitoring plan occurred.

A.8. Changes since the Beginning of the Last Verification

There has been no change since the beginning of last verification.

A.9. Persons Responsible for the Preparation and Submission of the Monitoring Report

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SECTION B CARBON MONITORING REPORT

B.1 Key Monitoring Activities According to the Monitoring Plan for the Monitoring Period as Stated in A.4

B.1.1 Monitoring Equipment

B.1.1.1 Table Providing Information on the Equipment Used:

Serial Number	Device	Manufacturer	Model	Date of installation	Date of Initial-calibration
003462512007	MAIN METER	ELSTER	2007	May 2008	May 2008
003462502007	BACK UP METER	ELSTER	2007	May 2008	May 2008

B.1.1.2 Calibration Procedures:

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

"The Turkish Electricity Market Regulation Agency (EPDK) sets rules on the accuracy of electricity meters that are used by power plants feeding into the grid. The rules are part of the EPDK regulation 25056 from 22 March 2003. The table in Article 11 of the regulation specifies the use of electricity meters of the accuracy class 0.5S for power plants between 10 MW and 100 MW and refers to compliance with International Electrotechnical Commission's norm EN 60687. TEIAS, whose employees will monthly visit the plant for the meter readings, is in charge of ensuring the adherence to these rules. Calibration and maintenance procedures follow the requirements set by TEIAS."

On 18.08.2008, it is realized that there is discrepancy between main meter and back meter, After testing by TEİAŞ, main meter was reset and calibrated by TEİAŞ. This situation was stated in a protocol signed mutually by TEİAŞ and project developer.

B.1.2. Data Collection (Accumulated Data for the Whole Monitoring Period)

B.1.2.1. Data concerning GHG emissions by sources of the baseline:

ID	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e)	Recording frequency	Comment
1. GEN_y	Net electricity delivered to the grid	Electricity Meter	MWh	m	Continuously	The data will be taken from the monthly meter readings, documented in the "meter reading record".

B.1.2.2. List of fixed default values:

Parameter	Default value	Description
EF	0.7086 tCO_2/MWh	Emission factor of the Turkish grid determined ex- ante

B.1.2.3. Data concerning leakage:

No leakage needs to be considered.

B.1.2.4. Data concerning environmental impacts:

For this paragraph we refer to the Gold Standard Sustainability Monitoring Report (Section C).

B.1.3. Data Processing and Archiving

Data handling is carried out according to the description in the GS-VER PDD. The officials from TEIAŞ perform monthly the measurements for both main and back up meters, under the control of the plant personnel of Ertürk. The TEIAŞ personnel comes to the plant in the first days of the month for reading the recorded values obtained at 24:00 of the last day of the month before. The data of meter reading protocols which form the basis of net electricity figures are filled on the first day of every month to record the generation of previous month. A reading protocol is then signed by both parties. An invoice (receipt of sale) is prepared by Ertürk and delivered to TEIAŞ. The monthly meter reading data is stored in web server of PMUM which is an agency of TEIAS for financial conciliations.

B.1.3.1. A Backup Unit for Systematic Storage (Availability of the Manually Read Data in the PCs of the Project Developer)

Quality of data handling and storage is assured by the business processes between Ertürk and TEIAS. The monthly meter reading documents are stored by Ertürk and TEIAS, the settlement notification, which is issued by TEIAS and includes the meter reading data, is stored on a PMUM/TEIAS file server and accessible by Ertürk via a secured website[2]. The meters themselves can always be read as plausibility check for verification.

B.1.4. Special Events

There is no special event other than described in A.6.

B.2 Quality Assurance and Quality Control Measures

The Project owner is Ertürk Elektrik Üretim A.Ş and is therefore responsible for the operation and the monitoring of the project activities. Quality assurance for the plant operation in general is a main aspect in the contract with the turbine supplier. The contract with VESTAS includes power curve

[2] http://pmum.teias.gov.tr/UzlasmaWeb/

guarantee as well as complete maintenance and service procedures for the first two years of operation. After two years, the own team of Ertürk is able to perform service and maintenance or purchase additional Service & Availability services from VESTAS.

B.2.1. Documented Procedure and Management Plan

B.2.1.1 Roles and Responsibilities

For Ertürk A.Ş, Mr. Mustafa Ogut is the plant manager responsible for monitoring issues within this project.

B.2.1.2. Operational Handbook with its Relevant Documents

The Operation, Maintenance and Online System Guidelines handbooks exists to enable the plant manager to assign duties and train his staff.

B.2.1.3 Trainings:

The contract with VESTAS includes a dedicated training for two members, namely Mr. Mustafa Ogut and Mr. Mehmet Kaygusuz, of the wind farm staff at VESTAS Italy. Under the guidance of those staffs and the VESTAS employees who are in charge of maintenance and service during the first two years, a competent team will form ensuring high quality operation of the wind farm. The rest of staff of the Çatalca wind farm has already been trained in 2008.

B.2.2. Involvement of Third Parties

Support and consultancy regarding the Gold Standard VER obligations is provided by FutureCamp GmbH.

B.2.3. Data Audit and Control Measures

There is analysis and maintenance system operated by Vestas. This system records automatically all electricity generation data and wind parameters of each single wind turbine. In this way any times of abnormal operation can immediately be identified accordant measures can be initiated. In addition, a dedicated SMS system has been setup that allows notification of all key personnel including Vestas maintenance team to be alerted 24 hours 7 days a week.

B.2.4. Troubleshooting Procedures

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

B.3 Calculation of GHG Emission Reductions

B.3.1. Used Formulas

The total emission reductions can be calculated with the results of the below described equations.

The emission reduction is equal to the baseline emissions minus project emissions and leakage emissions. Leakage emissions in this project are considered to be negligible. There are no project emissions in this kind of project. The general equation is as follows:

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

Where:

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

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:

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

Where:

GEN_y	= Net electricity supplied to the Grid in MWh (ID 1)
EG_{export}	= Electricity supplied to the Grid in MWh
EG_{import}	= Electricity consumption from the Grid in MWh

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

$$BE_y = GEN_y * EF \quad \textbf{(3)}$$

Where:

BE_y	= Baseline emissions in tonnes CO_2e
EF	= Grid emission factor for the electricity displaced due to the project activity during the year y [tCO_2e/MWh].
GEN_y	= Net electricity supplied to the Grid in MWh (ID 1)
y	= Refers to a given period

B.3.2. GHG emission reductions (referring to B.2. of this document):

B.3.2.1. Project Emissions:

There is no project emission in this kind of project. However for emergency cases, there is a diesel generator to be used. For the monitoring period and applied methodology, diesel generator is not considered as project emissions.

B.3.2.2. Baseline emissions:

The baseline emissions for the project activity according to the PDD are included in the following table. The values of second and third column are taken from monthly meter reading protocol that was signed by TEİAŞ officer and plant manager. For cross check of these data, monthly meter reading protocol and TEİAŞ webpage will be provided to the verifier.

Months	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 emission (acc. formulae 3): (ER = GEN * EF) [t CO2e]
May'09	9,890.50	59.60	9,830,90	6,966.18
June'09	7,694.40	49.20	7,645,20	5,417.39
July'09	12,528.60	48.80	12,479,90	8,843.26
August'09	20,265.20	0.00	20,265,20	14,359.92
September'09	12,827.80	21.20	12,806,40	9,07462
October'09	10,678.90	34.90	10,644,00	7,542.34
November'09	7,793.70	52.40	7,741,50	5,485.63
December'09	15,397.60	11.50	15,386,10	10,902.59
SUM'09	***97,076.70***	***277.60***	***96,799,10***	***68,591.84***
January'10	17,142.90	7.50	17,135,40	12,142.14
February'10	12,652.50	29.20	12,623,30	8,944.87
March'10	14,174.20	26.90	14,147,30	10,024.78
April'10	12,954,90	37.70	12,917.20	9,153.13
SUM'10	***56,924.50***	***101.30***	***56,823.20***	***40,264.92***
Total SUM 2009-2010	**154,001.20**	**378.90**	**153,622.30**	**108,856.76**

B.3.2.3. Leakage:

Leakage is considered to be negligible

B.3.2.4. Summary of the emissions reductions during the monitoring period:

According to the general equation

$$ER_y = BE_y = EF * GEN_y$$

Emission reduction = Baseline emissions = Emission Factor * Supplied Net Electricity

Emission reductions generated during the second monitoring period (01 May 2009 to 30 April 2010)	**108,856 tCO_2e**

Thereof, the following emission reductions were generated in 2009 and 2010:

Emission reductions generated in 2009 (01 May 2009 to 31 December 2009)	**68,591 tCO_2e**
Emission reductions generated in 2010 (1 January 2010 to 30 April 2010)	***40,264*tCO_2e**

SECTION C SUSTAINABILITY MONITORING REPORT

C.1. Sustainable Development Indicators

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

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

For the first verification, six indicators were added to the monitoring plan. While three of them, namely "Employment during construction phase", "Waste management during construction phase", "Tree planting" were subject to first verification, they are not repeated for periodic verifications. Additionally, the table related with employment during construction will be taken from the report, while it was also verified during initial verification and not subject to any changes during period verifications.

All documents regarding these indicators presented to DOE during the on-site visit:

C.1.1 Monitored Sustainable Development Indicators

Sustainable Development Indicators	Data Variable	Measured (m), calculated (c), or estimated(e)	Rationale
Employment for plant operation	Number of Employees	M	Operation of plant created high qualified jobs (See C.2.1).
Training for the employees	Employees with type of training	M	The plant engineers have been trained with regard of contact between Vestas and Ertürk. All training certificates and measures can be presented during on-site visit. The rest of staff of the Çatalca wind farm has already been trained in 2008.
Impact on the local economy	Number and type of contracts	m	Another positive social impact of the project is local business that is generated due to the project activity. Varying with different type of invoices such as Nourishment (Lunch), Electrical equipments, Water supply, Drinking water supply, Automobile Mechanic services, petroleum supply, cleaning equipments, stationery equipments and other supermarket shopping,during the second monitoring period of Çatalca 60 MW WPP, 220 invoices were received due to the business relation between Çatalca WPP and local business.

C.1.2 Staff Trainings

Concerning local job creation in the table C.1.1, employed staff by Çatalca 60 MW WPP was trained to increase their capabilities to handle their jobs efficiently. These kinds of trainings contribute job creation as well as human and institutional capacity. Description of the training, administration of the training program, attendee and duration of the training are provided below.As it can be followed from the chart below, some of trainees went through multiple trainings due to increasing their capacity to handle multiple situation and position in WPP.

Description of Traning	Administered By	Attendee	Duration	Certificate	Date of Training
High Voltage training provides technicians to handle the work under such circumstances safely and enable them to work in high voltage plants.	EÜAŞ	Technicians Ceng Sağır, Ersin Alaydın, Harun Yüce, Süleyman Toker	92 hours	Authorization Certificate to work in High Voltage Plants	07.01.2008 – 01.02.2008
Informational course by turbine manufacturer on V90 3MW Mk 7,	VESTAS	Mustafa Öğüt (Plant Manager) Mehmet Kaygusuz (Technical Manager)	NA	Certificate of attendance	05.12.2007
Basic first aid training program	EÜAŞ	Technicians Ceng Sağır, Ersin Alaydın, Harun Yüce, Süleyman Toker	12 hours	First Aid Certificate	07.01.2008 – 01.02.2008
Occupational Heath and Security	EÜAŞ	Technicians Ceng Sağır, Ersin Alaydın, Harun Yüce, Süleyman Toker	12 hours	Occupational Heath and Security Certificate	07.01.2008 – 01.02.2008
Vestas Scada System Training Course	VESTAS	Mehmet Kaygusuz, Mustafa Öğüt	NA	Scada training	05.12.2007
Basic Fire Training	ASR	Mustafa Öğüt, Ender Ağdere Ceng Sağır, Ersin Alaydın, Harun Yüce, Süleyman Toker	8 hours	Basic Fire Training Certificate	08.01.2010
Emergency Training	ASR	Mustafa Öğüt, Ender Ağdere Ceng Sağır, Ersin Alaydın, Harun Yüce, Süleyman Toker			19.01.2010
Sensormatic training	Sensormatic Güvenlik A.Ş	All technical staff	NA	Sensormatic Certificate	23.12.2009

C.2. Employment Created During Project Activity

C.2.1 Employment Created During Operation of the WPP.

Employment	Description	Number of employee	Duration of the Contract	Training?	Employment; Local or not?
Technical Manager	Responsible from operational organizations at Bursa technical office. Coordinates the works of the project.	1	Sanko Holding Employee	YES	Not Local
Plant Manager	Responsible from all kind of operational activities as well as maintenance and management. Reports to Bursa technical office and head office in Gaziantep.	1	Erturk Elektrik Üretim Employee	YES	Local
Electric Technicians:	Work on alternating shifts. Apart from routine controls, intervene to electrical breakdowns.	5	Erturk Elektrik Üretim Employees	YES	Local
Turbine Supplier Technicians (Vestas):	Intervene to serious breakdowns.	4	Vestas Turkey Employees	YES	Not Local
Security Guards:	Work on alternating shifts, maintain security of plant.	9	Altay Security Services – 1 year to be renewed each year	YES	Local

SECTION D OPEN ISSUES FROM PREVIOUS VERIFICATION

There were two Forward Action Requests (FAR) from previous verification that took place in 2009 which were agreed by Project participants to be implemented:

- ***FAR1****: Please provide a guide containing all operational procedures concerning the plant operation and data management in the next verification.*

A guide on quality management system of monitoring of emission reduction is implemented by Monitoring Manual. This could be presented to DOE.

- ***FAR2****: Please provide separate invoices for the Catalca 60 MW Wind Power plant in the next verification periods.*

Separate invoices for the Çatalca 60 MW WPP will be presented to DOE on site meeting.

Annex 1: Definitions and Acronyms

ACM	: Approved Consolidated Methodology
DOE	: Designated Operational Entity
GHG	: Greenhouse Gases
GS	: Gold Standard
PDD	: Project Design Document
TEIAŞ	: Turkish Electricity Transmission Company
VER	: Verified Emission Reductions
EPDK	: Turkish Electricity Market Regulation Agency
PMUM	: Market Financial Conciliation Centre