VERIFICATION REPORT

for the GS VER Project Activity

Kuyucak 25.6 MW Wind Farm Project, Turkey

in

Turkey

Report No. 21223934-2014

Version 01.0, 2014-05-05

Designated Operational Entity (DOE)

TÜV Rheinland (China) Ltd

Unit 707, AVIC Building, No. 10B, Central Road, East 3rd Ring Road,

Chaoyang District, Beijing 100022,

People's Republic of China.

Tel.: +86 10 65 66 66 60 (ext.169)

FAX: +86 1065 66 66 67

E-mail: doe@chn.tuv.com

I. Project data:

Project title:	Kuyucak 25.6 MW Wind Farm Project, Turkey
Registration No.:	GS 576
Monitoring period:	01/01/2013 – 31/03/2014 including both days
Methodology:	ACM0002, version 07
Verified emission reductions:	53,759 tCO_2e
GHG reducing measure/technology:	Electricity generation by renewable wind power energy resource

II. Verification data:

Verification team

Role	Full name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Mr. Norbert Heidelmann	1.2, 13.1, 13.2, 15.2	TÜV Rheinland
Local Expert	Mr. Gürhan Bahadir	-	TÜV Rheinland Turkey
Technical Reviewer	Mr. Ralf Kober	1.2, 7.1, 13.1	TÜV Rheinland

III. Verification report data:

Report No.:	Current revision No.:	Date of current revision:	Date of first issue:
21223934-2014	**01.1**	**2014-05-05**	**2014-05-05**

Distribution:

☒ No distribution without permission from the Client or responsible organizational unit ☐ Unrestricted distribution

Verification opinion — summary

The verification team assigned by the DOE - TÜV Rheinland China Ltd. concludes that the GS VER project activity “Kuyucak 25.6 MW Wind Farm Project, Turkey” (GS 576), as described in the registered PDD (version 10, 14/03/2011) and 3rd period monitoring report (version 1.1, 2014-04-30), meets all relevant requirements of the Gold Standard for VER project activities.

According to Gold Standard Requirements (version 2.2), the verification has been performed in line with the latest version of the UNFCCC CDM Validation and Verification Standard (VVS) and constitutes the following steps:

1. Desk review of the monitoring plan, monitoring report, project design document and other relevant documents;
2. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary);
3. Resolution of outstanding issues and the issuance of the final verification report and Certification statement.

The project activity was correctly implemented according to selected monitoring methodology and the registered monitoring plan. The monitoring equipment was installed, calibrated and maintained in a proper manner, while collected monitoring data allowed to verify the amount of achieved GHG emission reductions. The DOE therefore is pleased to issue a positive verification opinion expressed in the attached Certification Statement.

TABLE OF CONTENTS

1. Introduction

Alize Enerji Elektrik Üretim A.Ş. has commissioned the DOE - TÜV Rheinland China Ltd. to perform a verification of the GS VER Project Activity “Kuyucak 25.6 MW Wind Farm Project, Turkey” (GS 576), (hereafter “project activity”). This report summarises the findings of the verification of the project, performed on the basis of relevant Gold Standard requirements, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the GS Board. Verification is required for all registered GS VER project activities intending to confirm their achieved emission reductions and proceed with request for issuance of VERs.

1.1 Objective

The purpose of verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner.

In particular, monitoring plan, monitoring report and the project’s compliance with relevant GS criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented.

1.2 Scope

The verification comprises a review of the monitoring report over the monitoring period from 01/01/2013 to 31/03/2014 including both days, based on registered GS PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

On-site visit and stakeholders interviews are also performed as part of the verification process.

2. Methodology

The verification consists of the following three phases:

1. Desk review of the monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents;
2. On-site visit (including follow-up interviews with project stakeholders) which includes the following:

- An assignment of implementation and operation of project activity with respect to registered GS PDD or approved revised GS PDD;
- Review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the GS PDD;
- Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources;
- Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and GS PDD;
- Review of assumptions made in calculating the emission reduction;
- Implementation of QA/QC procedure in-line with the GS PDD and methodology requirement.

3. Resolution of outstanding issues and the issuance of the final verification report and certification statement.

The following sections outline each step in more detail.

2.1 Desk review

The following table outlines the documentation reviewed during the verification:

No.	Document
/DOC1/	Gold Standard Requirements, version 2.2
/DOC2/	Gold Standard Toolkit, version 2.2
/DOC3/	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (version 07)
/DOC4/	CDM Validation and Verification Standard, version 03.0

No.	Document
/DOC5/	The registered GS PDD (version 10, 14/03/2011)
/DOC6/	The approved verification report of 2nd monitoring period Version 02.1, 2013-03-05
/DOC7/	GS Issuance Review of March 1st 2013 for Monitoring period: 01/01/2012 to 31/12/2012
/DOC8/	3rd period monitoring report (version 1.0, dated 24/01/2014)
/DOC9/	3rd period monitoring report (version 1.1, dated 30/04/2014)
/DOC10/	Spreadsheet of ER calculation, ER-Calculations-Kuyucak-MR03-20140123.xls And ER-Calculations-Kuyucak-MR03-20140430.xls
/DOC11/	Organizational structure of the project owner, 01-CompanyOrganisation
/DOC12/	Training record and participation certificates of all staff and trainings identified in the MR, 04-TrainingRecords
/DOC13/	Consolidated list of all trainings performed, 03-TrainingList-ENG
/DOC14/	PMUM data record for electricity supplied to the grid and drawn from the grid, screenshot printouts with monthly totals, 06-ReadingsPMUM
/DOC15/	Project owner's record protocol for electricity supplied to the grid and drawn from the grid, uses TEIAS format, is sent to TEIAS for grid operating purposes, states the net electricity drawn/supplied to the sub-station, 05-ReadingsProtocols
/DOC16/	Invoice issued by the project owner for electricity production, 07-ReadingsInvoices
/DOC17/	Social security records of all months of 2013, 8 people, 08-SocialSecurity
/DOC18/	Proof of new employment, Ahmet Sisko/ Köksal Besol
/DOC19/	Residence certificates of the new employees, 11-ResidenceRecords_2people
/DOC20/	Residence certificates of all employees, 18-ResidenceCertificates
/DOC21/	Operation / generation license of the project activity with amendment, 12-LicenseAmendment

No.	Document
/DOC22/	Emergency plans and proof of deployment on-site, 16-EmergencyPlans
/DOC23/	Schematic circuit diagram of the project activity, 14-BlockDiagram
/DOC24/	Technical specification of turbine, 15-TurbineSpecifications E70-E44
/DOC25/	Electricity meter deviation test of 07.05.2013, 401681/401680, 02-MeasurementDeviceTest
/DOC26/	Waste disposal invoices of municipality for operation of Alize, 13-WasteDisposal
/DOC27/	Plant operation log book, on-site
/DOC28/	Operation record of diesel generator, on-site
/DOC29/	Metering device tests, on-site
/DOC30/	Daily electricity production protocols, used as consistency check, on-site
/DOC31/	Monthly cumulative daily electricity generation protocol for January 2013, used as consistency check for the delivered Monthly generation figures, on-site
/DOC32/	Notification of OSOS arrangement issued by TEIAS, on-site

2.2 On-site visit and follow-up interviews with project stakeholders

No.	Date	Name	Organization	Topic
/I1/	24/02/2014	Mr. Hasan Uyan	Alize Enerji Elektrik Üretim A.S.	- Information regarding actual implementation of the project activity - Installation of monitoring system - Data flow monitoring system - Calibration of the electric meter - QA/QC procedure - Emergency procedure - Training on operation - SD indicators
/I2/	24/02/2014	Mr. Ahmet Topaç	Alize Enerji Elektrik Üretim A.S.	- Monitoring management - QA/QC procedure - Emergency procedure - Date of commissioning of the power plant - Billing method for net power supply - SD indicators
/I2/	24/02/2014	Mr. Yalçın Artış	Alize Enerji Elektrik Üretim A.S.	- Work conditions, employment - Social records are showing that normally eight employees are working for Alize directly. New employment was counted as they work for Enercon but they are also directly subcontracted from Alize.
/I3/	24/02/2014	Various persons (6)	Local residents of Halkavlu Village	- Opinion on the project - SD indicators, noise: One person (lives closest to the turbines) lives approximately in 500 meters distance. He is the only person who can hear the turbines operating at all. Reports noise “non-disturbing” - Feedback on bird activities (no feedback given, according to plant manager, no incidents reported)

2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues which have to be clarified prior to final DOE’s conclusions on the project implementation, monitoring practices and

achieved emission reductions. In order to ensure transparency a verification protocol is completed for the project activity. The protocol shows in transparent manner criteria (requirements), means of verification and resulting statements on verification actual project activity against identified criteria.

The verification protocol serves the following purposes:

- It is organised in a table form and details the requirements, which a GS VER project is expected to meet;
- It ensures a transparent verification process where the DOE will document how a particular requirement has been verified and the result of the verification was achieved.

The verification protocol consists of two tables. Table 1 reflects the verification requirements and reference to the materials used to verify the project activity against those requirements, as well as means of verification, reference to Table 2 and preliminary and final opinion of the DOE on every particular requirement. The completed verification protocol for this project is enclosed in Appendix A to this report.

Findings during the verification (Table 2) can be interpreted as a non-compliance with GS criteria or a risk to the compliance. Corrective action requests (CARs) are raised, in case:

(a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;

(b) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;

(c) Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

Requests for clarification (CLs) are raised, if information is insufficient or not clear enough to determine whether the applicable GS requirements have been met.

2.4 Internal quality control

The final verification report has passed a technical review before being submitted to the project participant. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for GS validation and verification.

3. Verification findings

The findings of the verification are described in the following sections. The verification criteria (requirements), the means of verification and the results of verification are documented in detail in the verification protocol in Appendix A.

3.1 Project implementation

3.1.1 The implementation of the project activity

By means of desk review and on-site observation, the verification team confirms the installed physical facilities of the project activity as follows:

Actual implementation of the project activity	***Consistency with the registered GS PDD***	***Assessment by the verification team***
The project activity is located in Kuyucak region, Manisa province, Turkey. The GPS coordinates of each wind turbine have been correctly documented in the 3rd period monitoring report (version 1.1, dated 30/04/2014).	☒ Yes ☐ No	The project location reported in the MR in consistency with the registered PDD has been checked during the on-site assessment
Technical specification of wind turbines: **Model: Enercon E70** - Unit: 12 - Installed capacity: 2 MW of each wind turbine - Specification: Gearless, variable speed, variable pitch control **Model: Enercon E40** - Unit: 2 - Installed capacity: 0.8 MW of each wind turbine - Specification: Gearless, variable speed, variable pitch control The total installed capacity of wind turbines is 25.6 MW = (12 * 2 MW + 2 * 0.8 MW)	☒ Yes ☐ No	The wind turbines specifications, layout and connection to the substation have been confirmed and verified during the last two verification processes. The specifications sheets have been reviewed again and the siting was checked again against changes on-site.

Actual implementation of the project activity	*Consistency with the registered GS PDD*	*Assessment by the verification team*
Installation of main meter - Location: At substation controlled by TEİAŞ - Accuracy: 0.2s - Calibration frequency: Each 10 years	☒ Yes ☐ No	The main meter was observed by the verification team during the on-site assessment that the meter has been installed at the substation and is controlled by the grid company. It measures amount of electricity supplied to the grid and drawn from the grid. The sealing in the control cabinet ensures access by TEIAS only. Therefore, it is confirmed that installation of the main meter is in accordance with description in the registered GS PDD.
Installation of backup meter - Location: At substation controlled by TEİAŞ - Accuracy: 0.2s - Calibration frequency: Each 10 years	☒ Yes ☐ No	The backup meter was observed by the verification team during the on-site assessment that the meter has been installed at the substation and is controlled by the grid company. It measures amount of electricity supplied to the grid and drawn from the grid in case of malfunction of the main meter. Therefore, it is confirmed that installation of backup meter is in accordance with description in the registered GS PDD.

In summary, the verification team confirms that the installation of the equipments and facilities is in consistency with the registered GS PDD.

3.1.2 The actual operation of the GS VER project activity

The timeline of the project's implementation is as follow:

Milestone of the project activity	*Timeline*	*Assessment by the verification team*
Starting date of operation	11/11/2010	Subject to the last Verification the plant operation log book was reviewed by the verification team, it was confirmed that the project activity started operation and supplying electricity to the grid on 11/11/2010.

Milestone of the project activity	*Timeline*	*Assessment by the verification team*
Registration of the project activity as GS VER	15/04/2011	Verified information on GS Registry http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000002340
Current crediting period	11/11/2010 – 10/11/2017	Verified information on GS Registry
1st monitoring period	11/11/2010 – 31/12/2011	Verified information on GS Registry
2nd monitoring period (current one)	01/01/2012 – 31/12/2012	Verified information with internal own data records
3rd MP	01/01/2012 – 31.03.2014	This Verification

In summary, the monitoring period is reasonable and the actual implementation of the project activity is appropriate to its development as GS VER.

3.2 Compliance of the monitoring plan with the monitoring methodology

By means of reviewing the monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (version 07), the registered monitoring plan and the monitoring report, the verification team confirms that monitoring plan applied in compliance with the monitoring methodology.

3.3 Compliance of the monitoring with PDD and monitoring plan

The verification team carried out the following activities to confirm that the actual monitoring activity at site is in compliance with the monitoring plan of the registered GS PDD and the reductions in GHG emissions claimed for the monitoring period are conservative.

3.3.1 Monitored parameters

According to registered monitoring plan as documented in the registered GS PDD, the following parameters need to be monitored:

EG (Net electricity supplied to the grid)

Item	*Description*	*Assessment by the verification team*
Monitoring equipment	The main electric meter The backup electric meter	The main and backup electric meters are bi-directional meters which directly measure both electricity supplied to the grid and drawn from the grid. As described in section 3.1.1 of this report, the main and backup electric meters have been installed at the substation and are controlled by the grid company - TEİAŞ.

Item	*Description*	*Assessment by the verification team*
		The backup meter serves as cross checking of monitoring data by the main meter and its data will only be used for ER calculation if the main meter has malfunction.
Frequency of measurement	Continued measurement	The verification team confirms that raw data has been measured by both the main meter and back up electric meter continuously. Records (Reading Protocols) are taken manually from the readings of the meters. Those records show that all data was available during all times of the MP.
Data record	PMUM data record	The amount of net electricity supplied to the grid from 01/01/2013 to 31/03/2014 including both days was based on the main meter's measurement record which is verifiable to PMUM record issued by the grid company. Furthermore, the PMUM record has been checked against the paid invoice and project owner's internal record. The verification team confirms that the PMUM data record used for emission reduction calculation is reliable. Spot-check: For the month January 2013 a deep check was performed with the hourly handwritten protocols. The cumulative amount and the difference to the starting amount resulted exactly in the recorded and submitted amount of 6.039,23 MWh.
Frequency of data record	Monthly record	The PMUM data is reported by the grid company on a monthly base from 00:00 on the first day to 24:00 on the last day of each month.

3.3.2 Monitoring responsibility

By means of interview with Mr. Hasan Uyan who is station manager of Kuyucak 25.6 MW Wind Farm Project /I1/, the verification team is convinced that the project owner's management and operational procedure is in accordance with the registered monitoring plan. The project monitoring organization was established and operated from the start of the project and responsibilities of the relevant staffs have been stipulated in the operation and monitoring manual. Training on operation of the project activity and monitoring arrangement has been given to the responsible personnel prior to the start of the project operation. Furthermore, qualification certificates of relevant operation staffs have been reviewed by the verification team during the on-site assessment to be effective.

3.3.3 Accuracy of equipment

According to registered monitoring plan, monitoring equipments have been installed in the project activity. The verification team observed the monitoring equipments during the on-site assessment and summarizes their technical specifications in the table below:

	The main meter	The backup meter
Function	Electric meter (bi-directional)	Electric meter (bi-directional)
Ownership	Project owner	Project owner
Controlling	Grid company	Grid company
Location	Outlet of substation (154 kV high voltage)	Outlet of substation (154 kV high voltage)
Monitored parameter	EG (both electricity supplied to the grid and drawn from the grid)	EG (both electricity supplied to the grid and drawn from the grid)
Type	ELSTER A1500	ELSTER A1500
Serial number	401681	401680
Accuracy	0.2s	0.2s
Initial calibration	17/11/2009	17/11/2009
Frequency of calibration	Each 10 years	Each 10 years
Relevant national standard	TS EN 62056-21 fulfilled	TS EN 62056-21 fulfilled

In summary, the verification team is able to verify that the accuracy the monitoring equipments were set according to the registered monitoring plan and relevant national standard in Turkey - TS EN 62056-21. Furthermore, calibration of mentoring devices was carried out according to the monitoring

plan, manufacturer specifications and relevant national standard in Turkey - TS EN 62056-21. Therefore, accuracy of monitoring equipments is assured.

3.3.4 Deviation from and Revision of the registered monitoring plan

In order to improve data quality and monitoring accuracy, an online remote reading system (so called OSOS) instead of manual record by personnel has been established by the grid company - TEIAS. By means of reviewing the notification issued by the TEIAS, it is confirmed that OSOS arrangement is an official standardization of data reading system.

The records of PMUM previously showed the so called “ISVM parameter” which is the net energy supplied to the grid from the plant. Now PMUM included “UEVM” which is the net energy amount supplied at the transformer station. Grid losses are deducted based on a numeric standard approach of TEIAS. This is a deviation from the original MP. The Verification team confirms that UEVM values are lower than ISVM values and that (by reviewing the submitted invoices and monthly records) no other values are available. This method is in line with a conservative approach.

The verification team hence confirms that the monitoring plan was not negatively affected and accuracy of monitoring system has been maintained.

3.4 Assessment of data and calculation of greenhouse gas emission reductions

According to the ACM0002 (version 07), emission reductions are calculated as follow:

$ER_y = BE_y - PE_y - LE_y$

where:

ER_y = Emission reductions in year y (t CO_2e/yr)

BE_y = Baseline emissions in year y (t CO_2e/yr)

PE_y = Project emissions in year y (t CO_2e/yr)

LE_y = Leakage emissions in year y (t CO_2e/yr)

Assessment of BE_y:

In ACM0002 (version 07) and the registered GS PDD, baseline emissions are calculated to be the amount of net electricity supplied to the grid by the proposed project activity (EG) multiplied by the emission factor of the grid ($EF_{grid,CM,y}$). The verification team confirms that emission factor of the Turkish National Grid was ex-ante determined to be 0.635 tCO_2e/MWh at the validation stage in both the PDD in its final version 10 of 14/03/2011 and the Validation Report. The calculation results were again checked during verification with the result given on page 20 in the PDD:

$EF_{grid,CM,y}$ = 0.679 t_{CO2}/MWh * 0.75 + 0.502 t_{CO2}/MWh * 0.25 = 0.635 t_{CO2}/MWh

In the “Tool to calculate the emission factor for an electricity system” (Version 1.1)”, the emission factor is valid for the crediting period and no monitoring is required. Thus, emission factor of 0.635 tCO_2e/MWh is justified.

The net electricity supplied to the grid was measured by the main meter which is a bi-directional meter. The main meter measures both electricity supplied to the grid and drawn from the grid. The difference between both figures is amount of net electricity supplied to the grid. The data used for ER

calculation is sourced from PMUM record issued by the grid company and cross-checked with other verifiable evidence to be correct. This is in particular the manually recorded hand written and signed reading protocols which are available for each month and the invoices submitted by the PO to the regulation authority.

The manually recorded sheets were cross checked individually such as were the invoices, whereas those are taken into consideration as a consistency check only because of deviating values (accounting values differ from the recorded values on-site). Also one deep check for the month January 2013 was performed with the hourly handwritten protocols. The cumulative amount and the difference to the starting amount resulted exactly in the recorded and submitted amount of 6.039,23 MWh of the monthly reading protocol. Below verified data is based on (as mentioned above) the direct submission of "UEVM" values from the PMUM sheets which is the net amount supplied to the grid at the transformer station of the project.

The table below lists the verified data:

Monitoring Period	***Net electricity supplied to the grid (KWh)***
01/01/2013 – 31/12/2013	70,263,860
01/01/2014 – 31/03/2014	14,397,305
Total	**84,661,165**

The baseline emissions during the monitoring period from 01/01/2012 to 31/03/2014 including both days are calculated as follows:

Monitoring period	***EG (KWh)***	***$EF_{grid,CM,y}$ (tCO_2e/MWh)***	***BE_y (t CO2e)***
01/01/2013 – 31/12/2013	70,263,860	0.635	44,617
01/01/2014 – 31/03/2014	14,397,305	0.635	9,142
Total (rounded down)		**-**	**53,759**

Assessment of PE_y:

According to ACM0002 (version 07), project emission for wind power generation project is not relevant. Nevertheless, diesel generator has been installed in the project activity in order to supply electricity to office building. This was also mentioned in the registered GS PDD.

The verified output capacity of the diesel generator is 24 KW. Hence, the highest emission factor of the diesel generator with installed capacity >=15 <35 kW according to CDM methodology AMS-I.F. (Version 02) of 1.9 kg CO_2e/kWh can be used. During the current monitoring period, the diesel generator was in operation for 550 minutes in total. This has been verified by reviewing the internal record on operation of the diesel generator. Therefore, the emission caused by diesel generator has been calculated to be 0.418 t which is less than 0.0007% of emission reductions generated in the current monitoring period. Therefore, the validation team is convinced that the greenhouse gas emissions caused by the diesel generator can be neglected and thus $PE_y = 0$.

Assessment of LE_y:

According to ACM0002 (version 07) and registered GS PDD (version 10, 14/03/2011), leakage emission is neglected and thus $L_y = 0$.

Emission Reductions (ER_y):

$ER_y = BE_y =$ **53,759** tCO_2e over the monitoring period from 01/01/2013 to 31/03/2014 including both days.

The verification team checked the verified emission reductions (53,759 tCO_2e) against the registered GS PDD estimate value (71,578 tCO_2e) and found that the verified emission reductions are lower than the estimated value in the registered GS PDD. However this is consistent with the verified Emission Reduction of the last monitoring period which was 46,893 tCO_{2e}.

Regarding lower verified emission reduction during the current monitoring period, the verification team would like to provide his assessment as follows:

During the desk review of relevant project documents, observation of physical installed facilities and interview with project owner during on-site assessment, the verification team did not identify any abnormal operation of the project activity during the current monitoring period.

Following the technical specifications and amount of installed wind turbines, it is confirmed that installed capacity of project - 25.6 MW is fully consistent with the registered PDD. The only reason for less electricity generation during the current monitoring period was wind resource and availability which deviated from the estimated figure during the validation. Although the electricity generation was estimated during validation higher than its real production, this has definitely no negative impact on remaining additionality. The lower revenues from electricity generation directly lead to lower IRR which doesn't cross benchmark any way. Based on verified figure during the current monitoring period, it substantiated conservativeness of estimated input parameter for additionality analysis during the validation.

Moreover, the net electricity generation was cross checked against the official third party evidence – PMUM data as well as project owner's record to be correct. Any manipulation of electricity generation figures is impossible. The electricity generation of project activity during the current monitoring period was real and reliable.

In summary, the verification team is convinced that electricity generation during the project implementation strongly depends on uncertain wind availability which is out of project owner's control. Therefore, the lower electricity generation compared to the figures in the PDD is reasonable and acceptable.

3.5 Issues remaining from the previous verification period

No further FARs in respect of sustainable development indicator were issued by the GS during the previous verification process (ref /DOC7/).

3.6 Contribution to sustainable development

The project activity contributes to the sustainable development of Turkey mainly by the means of job creation for local residents and improving air quality due to environmental technology of electricity generation. The project activity's implementation was assessed in terms of its contribution to sustainable development taking into account the validated SD Matrix and SD indicator monitoring

plan. It was observed by the verification team that the project activity is in compliance with the SD Matrix and monitoring of relevant SD parameters was performed appropriately and adequately. No negative impact on the SD indicators was identified during the verification. The project fulfils the SD requirements of GS standard and the project participant monitored the SD indicators according to the registered monitoring plan. The tables below elaborate assessments of SD indicators according to the registered monitoring plan done by the verification team:

ID2:

Item	***Description***
Parameter	Quality and quantity of local employment
Assessment by the verification team	By means of on-site interview, the verification team confirms that 8 full-time and 9 part-time jobs have been created by the project activity and these employees are the local people (Manisa, Savastepe). Employees' personal data and their residence certificates substantiate the number of local residents employed by the PP. Also the social security information was cross checked. Training records and training certificates of health and safety precautions; fire fighting; first aid and technical operation of wind power project have been reviewed by the verification team to be effective. Therefore, the verification team is convinced that the quality of employment is ensure and improved by the relevant training.
Conclusion	Quality of local employment has been verified to be compliance with the registered monitoring plan. The quantity of local employment (17) is higher than the figure in project design document (13). The verification team considers it to be even better and more contributed. Therefore, the SD indicator is sufficiently considered.

ID3:

Item	***Description***
Parameter	SO_2 and NO_x emissions reduction
Assessment by the verification team	According to the identified baseline scenario of the project activity, the electricity generation from fossil fuel combustion and the related fuel consumption which relates to SO_2 and NO_x emissions is replaced by the clean wind power energy source. The amount of emission reduction of SO_2 and NO_x has been calculated by multiplying net electricity generation to the National Grid of Turkey with the SO_2 and NO_x intensities of the grid. During the current monitoring period, 84,661,165 KWh electricity was supplied by the project activity to the National Grid of Turkey. The SO_2 and NO_x

	intensities were 2.04 kg/MWh and 1.56 kg/MWh respectively according to the latest National GHG inventory of Turkey which has been published at UNFCCC website. Hence, the SO_2 and NO_x emissions reductions during the current monitoring period have been calculated to be 172.5 tons and 131.8 tons respectively and checked by the verification team to be correct.
Conclusion	SO_2 and NO_x emissions reduction has been verified to be compliance with the registered monitoring plan. The SD indicator is sufficiently considered.

ID4:

Item	***Description***
Parameter	Emission from diesel consumption
Assessment by the verification team	During the on-site assessment, the verification team observed that a backup diesel generator with output capacity of 24 KW has been installed at the project site. By means of reviewing project owner's internal record on operation hours of diesel generator, the verification team confirms that the diesel generator was put into operation 7 hours in total during the current monitoring period. In order to calculate emission from diesel consumption conservatively, the highest emission factor of the diesel generator with installed capacity >=15 <35 kW as per approved CDM methodology AMS-I.F. (Version 02) of 1.9 kg CO_2e/kWh was taken into account. Therefore, the emission caused by diesel generator has been calculated to be 0.418 t t CO_2e (= 24KW * 550 Minutes/60 * 1.9kg CO_2e/kWh / 1,000) which is less than 0.0007% of emission reductions generated in the current monitoring period. Therefore, the verification team is convinced that the greenhouse gas emission caused by the diesel generator is so small that can be neglected.
Conclusion	Greenhouse gas emission caused by the diesel consumption during the current monitoring period was insignificant for the emission reductions and it can be neglected. The SD indicator is sufficiently considered.

ID5:

Item	***Description***
Parameter	Noise emission
Assessment by the verification team	The noise measurement was conducted by an independent third party – Cevre Analiz Saglik Hizmetleri ve Teknolojileri Ltd. Sti. who is also an accredited entity (Accreditation No. AB-0079-T) on 08/12/2010. The measurement records

	and detailed presentation of measurement as well as a conclusion are well documented by the expert. By means of reviewing the noise measurement report, the verification team confirms that the measurement was conducted at the closest settlement in accordance with Turkish National Standard - TS EN 61672 and noise level measured (immission value) is in line with Turkish national legal noise thresholds of 65 dB(A) in the morning - 60 dB(A) in the afternoon and 55 dB(A) at night. Moreover, the verification team interviewed the local residents of Halkavlu living in vicinity of the wind turbines during the on-site assessment. The local resident who is living closest to the turbines could be identified during the visit. He lives in approximately 400-500 meters proximity. He reported that even he cannot hear the turbines under normal conditions and he confirmed that he is not affected by the audibility at night. No negative impact on residents' daily life due to noise of wind turbines was identified. No complaint about noise imission was received by the verification team during the on-site assessment.
Conclusion	The environmental and social impacts caused by noise comply with GS requirements and relevant Turkish National Standard. The project owner's activity to avoid any negative impact has been checked by the verification team to be appropriate. The SD indicator is sufficiently considered.

Appendix A

Verification protocol

Kuyucak 25.6 MW Wind Farm Project, Turkey
to Report No. 21223934-2014

Table 1: Verification requirements

(based on §56, §57 and §62 of the CDM Modalities and Procedures and on CDM Verification and Verification Manual, Annex 1 of EB55)

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Implementation					
1.1 Have all physical features proposed in the registered PDD been implemented at the project site?	PDD MR	DR I	By means of on-site observation, the verification team checked actual implementation of the project and confirms all physical features have been implemented in accordance with the registered GS PDD.	OK	OK
1.2 Has the project activity been operated in accordance with the project scenario described in the registered PDD and relevant guidance?	PDD MR	DR I	Project's implementation fully complies with the registered GS PDD.	OK	OK
1.3 If the project activity is implemented on a number of different locations, has the Monitoring report provided the verifiable starting dates for each site?	PDD	DR I	Not applicable	OK	OK
2. Monitoring plan and methodology					

[1] MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
2.1 Is the monitoring plan established in accordance with the monitoring methodology?	PDD ACM0002	DR	The monitoring plan in particular of data monitoring, data record, data collection, data archive, data review, data transfer and QA/QC procedure are in accordance with ACM0002 (version 07)	OK	OK
2.2 In case the implemented monitoring plan defers from the monitoring methodology, has any requests for revision to or deviation from the monitoring methodology been officially communicated to the CDM EB? Reference: <http://cdm.unfccc.int/EB/033/eb33rep.pdf>, §84, §58	PDD MR	DR I	Not applicable	OK	OK
2.2.1 Have the above changes to the monitoring plan been approved by the CDM EB?	PDD MR	DR I	Not applicable	OK	OK
3. Monitoring and the monitoring plan					
3.1 Is monitoring established in full compliance with the monitoring plan, contained in the registered PDD (or new monitoring plan approved by the CDM EB)?	PDD MR	DR	Yes, the monitoring arrangement is in full compliance with the monitoring plan as documented in the registered GS PDD.	OK	OK
3.2 Are all baseline emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	PDD MR	DR	As per ACM0002 (version 07) and registered monitoring plan, net electricity supplied to the grid is monitored to calculate the baseline emission.	OK	OK

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.2.1 Was the monitoring equipment for baseline emission parameters controlled and monitoring results recorded as per approved frequency?	MR	DR I	The main meter (Serial No. 401681, Accuracy: 0.2s) is controlled by the grid company.	OK	OK
3.2.2 Was the monitoring equipment for baseline emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	MR	DR I	The main meter will be calibrated each 10 years that is prescribed by Turkish National Standard – TS EN 62056-21.	OK	OK
3.3 Are all project emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	MR	DR	The net electricity supply to the grid is monitored in accordance with registered monitoring plan and monitoring methodology.	OK	OK
3.3.1 Was the monitoring equipment for project emission parameters controlled and monitoring results recorded as per approved frequency?	MR	DR	Not applicable	OK	OK
3.3.2 Was the monitoring equipment for project emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	MR	DR	Not applicable	OK	OK
3.4 Are all leakage emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	MR	DR	Not applicable	OK	OK
3.4.1 Was the monitoring equipment for leakage emission parameters controlled and monitoring results recorded as per approved frequency?	MR	DR	Not applicable	OK	OK

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.4.2 Was the monitoring equipment for leakage emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	MR	DR	Not applicable	OK	OK
3.5 Were all monitoring parameters available and verifiable through the whole monitoring period?	MR	DR I	All monitoring parameters are verifiable through the whole monitoring period.	OK	OK
3.5.1 In case, only partial monitoring data is available and PP(s) provide estimations or assumptions for the rest of data, was it possible to verify those estimations and assumptions? Reference: <http://cdm.unfccc.int/EB/026/eb26rep.pdf>, §109(b)	MR	DR	Not applicable, all monitoring parameters can be monitored directly and completely.	OK	OK
3.6 Was management and operation system established and operated in accordance with the monitoring plan?	MR	DR I	By means of reviewing the monitoring and operation manual, the verification team confirms that the management and operation system is operated in accordance with the monitoring plan.	OK	OK
3.7 Was is it possible to verify that involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals?	MR	DR I	The qualification certificates of operation staff has bee reviewed by the verification team to be effective. Furthermore, training on operation of the project and monitoring arrangement has been given to the operation staff.	OK	OK
4. Parameters					

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.1 **Monitored parameter** Title: Electricity supplied to the grid Indication: EG Units: MWh Measured value (*ex-post*): 73,847,392 KWh from 01/01/2012 to 31/12/2012	MR	DR	Please refer to details as described in table 2	~~CAR 3~~	OK
4.2 **Default parameter** Title: Emission factor of the grid Indication: $EF_{grid,CM,y}$ Units: t CO2e/MWh Default/Used value: 0.635	MR	DR	As per registered GS PDD, the emission factor has been calculated by ex-ante method and thus the emission factor doesn't need to be monitored or recalculated for the current crediting period.	OK	OK
5. Calculations					
5.1 Have all the calculations related to the baseline emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	MR	DR	Please refer to details as described in table 2	~~CAR 3~~	OK
5.2 Have all the calculations related to the project emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	MR	DR	Not applicable	OK	OK
5.3 Have all the calculations related to the leakage emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	MR	DR	Not applicable	OK	OK

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)				
No.	**CAR**	**Reference**	**Summary of project owner response**	**Verification team conclusion**
1	Section A2 refers to the villages Demirtaş village (distance 1.5 km), Akçakısrak village (distance 3 km), Gölcük town (distance 2.1 km), Kocaiskan village (3.4 km) and others. In the previous VR "Halkavlu" village was mentioned and interviews were conducted there. Please briefly explain relation to this village and update MR in section A2 and/or SDI section.	MR, section A2	Halkavlu is also another nearby village, from where the Project has hired personnel. Sections A.2 and SDI ID.5 are updated slightly.	OK The village has been visited during the site-visit
2	The terms "*Iletim Sistemine Veris Miktari*" (ISVM) and "*Uzlasmaya Esas Cekis Miktari*" (UECM) cannot be found neither in the PMUM nor the reading protocols. Please update.	MR section D.2 calculation method, p. 11	ISVM is not included in the PMUM records anymore. It is not clear whether this is permanent, or not. However, due to the unavailability only UEVM data can be used for power export. This is conservative. The monitoring report, Section B.2.1 is revised by adding a temporary deviation to the monitoring plan for the electricity exported.	OK The subject has been discussed extensively. The deviation does not lead to an omission.
3	The expression "*The initial values of the measurement devices are recorded with a protocol (submitted to the DOE) with TEIAS*" in section D2 is confusing. Pls change.	MR, p. 12 QA/QC procedures	This section is reformulated for clarity.	OK
4	SD Indicator 3 SO2 "Future Target Reduction" is calculated wrong. 2.04*112,763=230 and not 598.	SD. ID 3, p.20	The error is corrected.	OK It was updated to take into account the new figures

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)				
No.	**CL**	**Reference**	**Summary of project owner response**	**Verification team conclusion**
1	The "device test" document of the 7th of May refers to both meters. Is this a standard procedure? Please confirm it was not a calibration.	document	This is a routine control, not a calibration. It does not lead to any inaccuracy or risk of measurement error.	OK This was confirmed on-site too
2	The calculation amount of net energy supply cannot be traced back. I.e. I cannot find or calculate the figure 5,880,078 kWh in the PMUM or reading protocols.	Energy calculation	For each month, the total UEVM (power export) figures are at the lowest row of the PMUM records.	OK This was clarified. The Verification Team missed the figures.
3	Section B.2.3. refers to the OSOS system and electronic transferral to TEIAS. In section D2 it is said "TEIAS reads monthly recorded values that were measured until 24:00 of the last day of the preceding month." Later: The monthly measurement device readings are transferred and stored in the web server of PMUM". Later: The monthly reading protocols are filled by the Project personnel and sent to TEIAS. Is it correct that in addition to the automated reading by TEIAS-personnel a reading is performed by plant staff (submitted protocols signed by Hasan Uyan) and sent to TEIAS as a cross-check?	MR, Section B.2.3	Each month the following procedure takes place: The electricity import and export data for the whole month is read remotely by and stored in the TEIAS PMUM system electronically. In addition, Project staff fills in the monthly protocol and sends it to TEIAS only for quality control and cross check purposes.	OK The issue was discussed

Appendix B

Certification statement

to the Verification Report 21223934-2014

Certification statement

to the Verification Report 21223934-2014

The DOE - TÜV Rheinland has performed a verification of the registered GS VER project activity "Kuyucak 25.6 MW Wind Farm Project, Turkey" (GS576). The project activity is designed to generate emission reductions by generation of electricity from renewable wind power energy resource.

The verification was performed to identify the compliance of the project activity with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions.

The verification is based on:

— Registered GS PDD (version 10, 14/03/2011);

— Registered validation report (Report No. CCP.VOL0362)

— Approved monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 07;

— Monitoring report of current monitoring period (version 1.1, 30/04/2014).

This verification statement covers monitoring period between 01/01/2013 and 31/03/2014.

The DOE has raised 4 corrective actions and 3 clarification request; all of them have been successfully resolved by the PP. No FAR persist/exist.

The DOE, herewith certifies that the project activity, achieved emission reductions by sources of GHG equal to **53,759** tCO_2 and all monitoring requirements have been fulfilled. The achieved ER per vintage are as follows

Monitoring period	***ER(t CO2e)***
01/01/2013 – 31/12/2013	44,617
01/01/2014 – 31/03/2014	9,142
Total (rounded down)	**53,759**

2014-05-05
Date

Mr. Ralf Kober
Technical Reviewer
TÜV Rheinland

2014-05-05
Date

Mr. Norbert Heidelmann
Team Leader
TÜV Rheinland