VERIFICATION REPORT

ALIAĞA WIND FARM PROJECT IN TURKEY

(GOLD STANDARD PROJECT ID: GS735)

Monitoring Period:
9 April 2010 to 31 December 2011

REPORT NO. 2012-0489
REVISION NO. 02

DET NORSKE VERITAS

VERIFICATION REPORT

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Client: EcoSecurities International Limited	Client ref.: Kristin Eldon Whylly

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Summary:

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions reported for the Aliağa Wind Farm Project in Turkey (Gold Standard Project ID: GS735) for the period 9 April 2010 to 31 December 2011.

In our opinion, the GHG emission reductions reported for the project in the monitoring report (Version 04) of 18 June 2012 are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology ACM0002 (version 12) and the monitoring plan contained in the Project Design Document of 17 November 2011.

DNV Climate Change Services AS is able to verify that the emission reductions from the Aliağa Wind Farm Project in Turkey during the period of 9 April 2010 to 31 December 2011 amount to 298 051 tonnes of CO_2 equivalent.

Report No.: 2012-0489	**Indexing terms**	
Report title: Aliağa Wind Farm Project in Turkey	Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification Market Sector Process Industry
Work carried out by: Wen, Bo; Kuzgun, Melih Mehmet; Covarrubias, Elfride	☒ No distribution without permission from the client or responsible organisational unit ☐ free distribution within DNV after 3 years ☐ Strictly confidential ☐ Unrestricted distribution	
Work verified by: Dudek, Agnes		
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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CL	Clarification request
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
DNV	Det Norske Veritas
DOE	Designated Operational Entity
EMRA	Energy Market Regulatory Authority
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
PDD	Project Design Document
MFRC/PMUM	Market Financial Reconciliation Center
TEİAŞ	Turkish Electricity Transmission Company
UNFCCC	United Nations Framework Convention on Climate Change
WEPP	Wind Energy Power Plant

1 INTRODUCTION

EcoSecurities International Limited has commissioned DNV Climate Change Services AS (DNV) to carry out the verification of emission reductions reported for the Gold Standard project Aliağa Wind Farm Project in Turkey (the proposed project) for the period 9 April 2010 to 31 December 2011. This report contains the findings from the verification and a verification statement for the verified emission reductions.

The project was registered as a Gold Standard (GS) project activity (Project ID: GS735) on 3 April 2012 and has a crediting period starting on 9 April 2010 (within two years prior to the retroactive registration with GS). This verification has emission reductions occurring from the start date of this crediting period.

1.1 Objective

Verification is the periodic independent review and *ex post* determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period.

The objective of this verification was to verify emission reductions reported for the "Aliağa Wind Farm Project in Turkey for the period 9 April 2010 to 31 December 2011 along with the GS indicators for sustainability criteria.

1.2 Scope

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified by the Gold Standard.

1.3 Description of the project activity

Title of project activity:	*Aliağa Wind Farm Project*
Baseline and monitoring methodology	*ACM0002 (version 12)*
Project Participants:	*Bergama RES Enerji Üretim A.Ş* *JPMorgan Ventures Energy Corporation*
Location of the project activity:	*Aliağa Town, Province of İzmir, Turkey*
Project's crediting period:	*1 April 2010 to 31 March 2017*
Period verified in this verification:	*9 April 2010 to 31 December 2011*

1.4 Methodology for determining emission reductions

In line with the applied methodology ACM0002 version 12 /58/, the emission reductions are determined as the difference between baseline emissions, project emissions and leakage:

$ER_y = BE_y - PE_y - L_y$.

PE_y and L_y are considered to be zero as stated in the registered GS PDD and GS validation report (thereafter referred to as PDD and validation report) and as per the methodology /1//5//58/. Therefore, the emission reductions are accounted as:

$ER_y = BE_y = EG_{facility,y} \times EF_{grid,CM,y}$.

$EF_{grid,CM,y}$ is the emission factor of the grid (tCO_2/MWh), which has been fixed *ex-ante* for the entire first crediting period at 0.59384 tCO_2/MWh, as per the registered PDD and the validation report /1//5/.

$EG_{facility,y}$ is the net electricity generation supplied to the grid, which is determined by the electricity output to the grid minus the electricity imported from the grid /1//2/.

2 METHODOLOGY

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

i) Review of project documentation /1//2//3//4//5//6//7/ ;

ii) The net electricity supplied by the project to the grid which is multiplied by a fixed grid baseline combined emission factor of 0.59384 tCO_2/MWh /1//5/;

iii) The actual installed capacity of the power plant to ensure the conformance with the descriptions in the registered PDD /1/;

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. DNV has for this assignment checked all factors and issues with the same emphasis. Despite this, DNV has during its preparations identified the key reporting risks and used the assessment to determine to which extent the project operator's control systems were adequate for mitigation of these key reporting risks. In addition, other areas that can have an impact on reported emission reductions have also undergone a detailed audit testing.

Verification team

Role	***Last Name***	***First Name***	***Country***	***Type of involvement***					
				Desk review	Site visit	Reporting	Supervision of work	Technical review	TA 1.2 competence
Team leader (Verifier)	Wen	Bo	Norway	✓	✓	✓	✓		✓
Validator with local knowledge of Turkey	Covarrubias	Elfride	Italy			✓			✓
Engineer with Turkish language competence and local knowledge of Turkey	Kuzgun, Melih	Mehmet	Norway			✓			
Technical reviewer	Dudek	Agnes	Norway					✓	✓

Duration of verification

Preparations: *From 2 April 2012 to 11 April 2012*

On-site verification: *From 12 April 2012*

Reporting, calculation checks and QA/QC*: From 16 April 2012 to 22 June 2012*

2.1 Review of documentation

This is a pre-registration verification for the proposed project for the monitoring period from 9 April 2010 to 31 December 2011, as the project was registered by the Gold Standard on 3 April 2012. The pre-registration verification has been performed based on the review of the following documentation provided by the project participants:

- The monitoring report of the monitoring period from 9 April 2010 to 31 December 2011, version 04 dated 18 June 2012 /2/
- The registered PDD, including the monitoring plan and the corresponding validation report /1//5/
- The emission reduction calculations provided in the form of a spreadsheet submitted by EcoSecurities International Limited /3/
- Data generated from the Market Financial Reconciliation Center (MFRC/PMUM) from April 2010 to December 2011 for the proposed project /7/
- An evaluation of data management, the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions /1//2//5//6//7//8//13//15//16/

- Baseline and monitoring methodology ACM0002 version 12 applied by the project /58/
- Gold Standard Sustainable Indicators of the proposed project during this monitoring period from 9 April 2010 to 31 December 2011 /17//18//19//20//21//22//23//25//26//27//28//29//30//31//32//33//34//35//36//37//38//39//41//42//44//45//46//47//48/
- Other information and references relevant to the project activity's resulting emission reductions /57//59//60//61//62//63/.

2.2 Site visit

CDM/GS verifier Wen Bo from DNV performed an on-site visit for Aliağa Wind Farm project in Aliağa Town, Izmir, Turkey on 12 April 2012. The key personnel of the project were interviewed or assisted the verification team /64//65//66//67//68//69//70//71/.

During this site visit, DNV has applied standard auditing techniques to assess the quality of information provided. The following aspects of the GS project activity have been verified:

- The implementation and operation of the GS project activity as per the registered PDD /1/;
- The information flow for generating, aggregating and reporting of the monitoring parameters /1//2//5/; and
- The operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD /1/.

Further, the following activities were performed:

- A cross-check between information provided in the monitoring report and data from other sources /1//2//3//4//5//6//7//8/
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology /1//2//13//15//16//58/;
- A review of calculations and assumptions made in determining the GHG data and emission reductions /3//7/;
- An identification that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters /8//27//28//29//38//39/; and
- Gold Standard Sustainable Indicators of the proposed project during this monitoring period /17//18//19//20//21//22//23//25//26//27//28//29//30//31//32//33//34//35//36//37//38//39//41//42//44//45//46//47//48/

The data presented in the monitoring report was assessed by review of the detailed project documentation and production records, as well as by interviews with personnel at project site, and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results; to verify the correct application of the approved monitoring methodology and the determination of the emission reductions. It can be confirmed through the site visit that

quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

In addition, all parameters required by the monitoring methodology ACM0002 version 12 and the management system were assessed during the site visit /58/.

2.3 Reporting of findings

A corrective action request (CAR) is issued, where:

i. Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
ii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
iii. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable requirements have been met.

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period.

The verification identified eight CLs which have been adequately responded to by the project proponent. The CLs raised and the response provided is as attached in Appendix A of this report. The CLs have been clearly addressed and thus been closed. One FAR has been identified during this monitoring period, and remains open until next verification, and one FAR which was raised at the validation stage has been identified as being satisfactorily addressed during this monitoring period and thus been closed. No CAR is raised at this monitoring period.

3 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the “Aliağa Wind Farm Project in Turkey" for the period 9 April 2010 to 31 December 2011.

3.1 Remaining issues, CARs, FARs from previous validation / verification

There is one FAR pending from validation for the proposed project activity, which is to request the project participant to include more female in the stakeholder consultation process /5/. To fulfil the request of having the views of different genders reflected during the stakeholder consultation process, the project participant organized a stakeholder consultation meeting, inviting women from neighbour villages to express their comments about the project on 28 June 2011/10/. Sustainable Development Survey was handed out during the meeting, and asked women’s views on indicators such as the air quality, water quality and quantity, soil condition, other polluters, biodiversity, quality of employment, poverty, income generation, technology transfer, etc. Seven feedbacks were received out of eleven surveys handed out /9/. In general, local women supported this project and confirmed that the project contributed to the local society by providing more accessible electricity and employment opportunities, yet they also expressed their wishes for free electricity, and for more employment opportunities /9/. The project participant explained during the meeting that it was not possible to have the free electricity but they would give priority to local villages whenever possible concerning the employment opportunities. The feedback of the survey was provided to DNV during the site visit /9/.

Concerning the number of questionnaires received, the project participant explained that the local villages are situated in remote areas, and many women at senior age from the local villages could not read or write. During the DNV site interviews with the local villagers, it was confirmed that young people left the villages for employment opportunities in big cities /64/, and old women remained in the villages not actively communicated with the outside world. Taking this into consideration, and also based on the local expertise in Turkish society, DNV considers the seven feedbacks is reasonable, and therefore confirms that the FAR is closed /9/.

3.2 Project implementation

As part of the site visit, DNV confirms that the project implementation is in accordance with the project description contained in registered PDD of 17 November 2011, and that the GS project started operation since 9 April 2010/1//2/.

The project is located in Aliağa, İzmir, Turkey. As verified by DNV during the site visit, through visual inspection of the project site and control room, the actual installed capacity of the project activity (36*2.5 MW) is consistent with the capacity stated in the registered PDD of 17 November 2011 /1/.

The monitoring procedures of electricity supplied to the grid were verified during the site visit and considered adequate. As specified in the registered PDD, two main meters have been installed to measure the electricity generation by the proposed project, with the manufacturer/model of the meters as Actaris SL7000 /1/. The two main meters are bi-directional with accuracy of 0.2 and the serial numbers are 53031823 and 53031826 as verified by DNV through visual inspection of the meters during the site visit. The accuracy of

the meters and the serial numbers are not specified in the registered PDD /1/. DNV confirms that the accuracy represents the current good practice in Turkey.

Backup meters are also mentioned in the registered PDD /1/ yet the number of the backup meters is not specified. DNV confirmed through the site visit that there are two backup meters installed for the proposed project with serial number as of 53031824 and 53031825 as verified by DNV through visual inspection of the meters during the site visit. These two meters are bi-directional with accuracy of 0.2, which represents the good practice in Turkey.

Electricity meters' maintenance and calibration is undertaken by TEİAŞ who ensures the accuracy and measurement quality /1//2/. Both main and back-up meters are sealed and locked in the main control room at the project site to guarantee the integrity of the instruments. The installation and operation of the monitoring meters were consistent with the registered PDD of 12 November 2011 /1/. The control system at the wind power plant is automated and assures continuous operation according the availability of wind resource.

On-site training for operating and maintaining the equipment was provided by the equipment supplier, e.g. the service basic and turbine technology training carried out by Nordex Academy, Concycle Wind Training carried out by Nordex Energy GmbH, theoretical and practical safety instruction training carried out by Triowind, technique of high voltage training carried out by Yasar Univerisy, safety training carried out by Bureau Veritas and A.Serdar Anlas, etc. /27//28//29//30//31//32//33//34//35/. Employees of the proposed project participated in different trainings to fulfil the request of their work, and DNV confirms that the training certificates have been provided during the site visit. DNV was able to confirm that this training certificates and procedure implementation were appropriate by checking the training record and interviewing the key personnel of the plant /27//28//29//30//31//32//33//34//35/.

Malfunctioning of equipment has been monitored and no report of malfunctioning was issued for this monitoring period.

3.3 Information (data and variables) provided in the monitoring report that is different from that stated in the registered PDD

The estimated annual gross electricity generation in the registered PDD is 294 900 MWh, which correspond to 509 813 MWh for a period equivalent to this monitoring period (from 9 April 2010 to 31 December 2011) i.e. 631 days /1//2/. The total actual measured gross electricity generation of the proposed project is 506 544 MWh for this monitoring period, which is 174 181 MWh in year 2010 and 332 363 MWh in year 2011.

The actual electricity generation measured for this monitoring period is very close to the value estimated in the registered PDD /1//2//3/. As per the PDD the estimated total emission reductions for this monitoring period are 306 465 tCO_2, while the actual emission reductions achieved during this monitoring period are 298 051 tCO_2, which is 2.7% lower than the estimation in the PDD. In year 2010, the actual emission reduction is approximately 23.0% less than estimation (100 887 tCO_2 vs. 131 342 tCO_2). And in year 2011 the actual emission reduction is 12.5% more than that estimation (197 164 tCO_2 vs. 175 123 tCO_2) /1//2//3/.

The project participant provided DNV with the Site-related Wind Potential Analysis and Energy Yield Assessment, which was carried out by DEWI Gmbh, an accredited independent third party /43//50/. The assessment examines wind patterns and probability commission to assist the placement of turbines via detailed and extensive project micro-siting measurements

/43/. DNV confirms that the assessment states that "probability of exceedance of energy yields" is 30% when the electricity generation is 332.5 GWh per year. As the electricity generation of year 2011 is 332.015 GWh, the generation values fall under the 30% probability of exceedance /43/. Considering the high uncertainty for renewable resource, DNV considers the extra generation of electricity in year 2011 is within reasonable range.

3.4 Compliance of monitoring plan with monitoring methodology

DNV is able to confirm that the monitoring plan contained in the registered PDD of 17 November 2011 is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12) /1//58/.

3.5 Compliance of monitoring with the monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD of 17 November 2011 /1/.

All parameters stated in the validated monitoring plan are monitored and reported appropriately. The monitoring report lists each parameter required by the registered monitoring plan and the information flow (i.e. from data generation, aggregation, to recording, calculation and reporting) for these parameters is provided in the monitoring report /1//2/. The information flow for the each parameter is further verified in the following sections.

3.5.1 Monitoring parameters

According to the monitoring plan of registered PDD of 17 November 2011, there is only one parameter to be monitored, which is $EG_{facility,y}$, the net electricity supplied to the grid by the proposed project /1/.

The table 1 below relates to the parameters in the monitoring plan / methodology:

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	Net electricity supplied to the grid by the proposed project
Measuring frequency:	continuously
Reporting frequency:	Record and report monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes It has been specified in the monitoring plan the electricity will be read and recorded monthly /1/, and this has been implemented during this monitoring period. In the monitoring report for this monitoring period /2/, the data was measured continuously and reported monthly, which in DNVs opinion satisfies the requirements of the methodology and PDD /1//58/ .
Type of monitoring equipment:	Electricity meters Actaris SL7000 • Main meter #1 with serial number 53031823 (used for ER calculation) • Main meter #2 with serial number 53031826 (used for ER calculation)

	• Backup meter #1 with serial number 53031824 (not used for ER calculation) • Backup meter #2 with serial number 53031825 (not used for ER calculation) It is stated in the registered PDD that there are two electricity meters /1/. In the Annex 4 monitoring plan of the registered PDD, however, it also mentions that there are main meters and auxiliary meters, and an authorized person from TEİAŞ will visit the project site for the monthly inspection in order to check the accuracy of the meters and back up meters /1/, although the number of the backup meters is not specified /1/. DNV confirms via the site visit that there are two main meters and two backup meters for the proposed project, and both main meters and backup meters are bi-directional, i.e. measuring both imported and exported electricity to the grid. Both main meters and backup meters are with accuracy of 0.2, which represents the good practice in Turkey. Only data generated from the main meters is used for the ER calculation, and no data from the backup meters is used /3/. The data is crosschecked with the data generated by the MFRC/PMUM system /7/, DNV considers that the set-up of the meters accurately measures the electricity generated by the proposed project.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	No meter accuracy is defined in the registered PDD /1/. DNV checked during the site visit through a visual inspection that the electricity meters have an accuracy class of 0.2, which represents good monitoring practice in Turkey.
Calibration frequency /interval:	Every 10 years
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes. The calibration interval is in line with the monitoring plan of the PDD /1/. In the registered PDD dated 17 November 2011, it states that in accordance with the Inspection of Measurement and Measuring Instruments Regulation published in Turkish Official Gazette, the inspection of meters needs to be done in every 10 years /1//15/. DNV checked the document and could confirm the same.
Company performing the calibration:	Electricity meters' maintenance and calibration is undertaken by the grid operator TEİAŞ who

	ensure the accuracy and measurement quality.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes. Both the main meters (serial number 53031823 and 53031826) and the backup meters (serial number 53031824 and 53031825) were calibrated when they were installed in year 2010, and Kesir Engineering issued the First Index Protocol on 9 April 2010 and 26 October 2010 to confirm that all the four meters were properly functioning /16/.
Is(are) calibration(s) valid for the whole reporting period?	Yes. The calibrations are valid until year 2020 /1//16/. However the quality of the meter will be checked monthly jointly by the project participant and the grid operator TEİAŞ, to ensure that the meters are working properly /1//2/. Any evidence of the malfunction of the meters will trigger an earlier calibration or other corrective measures.
If applicable, has the reported data been cross-checked with other available data?	The exported and imported electricity generation are measured and electronically recorded by the main meters and the backup meters, and all meters are sealed and belong to the grid operator TEİAŞ. The representatives from TEİAŞ and from Bergama RES Enerji Üretim A.Ş. jointly record, at the project site, on a monthly basis, the meter readings to ensure the accuracy of the record /6/. DNV confirmed that the monthly records of the electricity generated measured by the meters have been signed by the project participant and by the TEİAŞ /6/. DNV has cross checked the gross electricity generation from the signed meter protocols /6/ against the data generated by MFRC/PMUM (Market Finance Reconciliation Center), which is the monthly settlement document declared by the MFRC/PMUM for the purpose of invoicing the electricity produced and published electronically /7/. DNV confirm that the values are in accordance with the evidence reviewed /6//7/. In the ER calculation spreadsheet, for three month from April to June 2010, electricity was further deducted by MFRC/PMUM data in addition to the data measured by the meters /3/.

	When the project started operation in April 2010, there was turbines' testing period of three month from April to May 2010, and MFRC/PMUM deducted some electricity from the amount that was exported to the grid /49/, so the net electricity generated in the ER calculation spreadsheet for April to June 2010 is: electricity exported to grid - imported from grid - deductions for turbine testing /3/. The deduction recorded was verified by DNV and DNV confirms that the value in the record is the same as that used in the ER calculation spreadsheet /3//49/.
How were the values in the monitoring report verified?	Monthly meter record from bidirectional meters of electricity exported to and imported from the grid have been provided by the project participant and verified by DNV /6/. The monthly meter record and MFRC/PMUM data have been verified by DNV during the verification /6//7/. DNV was able to verify the calculating process and the conclusion is transparent and in accordance with the evidence review /3//6//7/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. DNV confirmed via the site visit that there are two bi-directional main meters used to continuously measure the electricity generated by the project and delivered to the grid /1//2/. These meters are owned by TEİAŞ, and TEİAŞ is responsible for the Maintenance and calibration of the meters. Representative from TEİAŞ joins the monthly meters reading with the plant manager of the proposed project to confirm that the data are recorded correctly. DNV confirms through the site visit that these meters are sealed and locked in the main control room of the project site. Hourly and daily readings log book of the meters were also checked during the site visit and DNV confirms that the data were properly recorded for this monitoring period from 9 April 2010 to 31 December 2011 /52/. Furthermore, the electronic copies of the original data are also kept at the plant site, which is in accordance with the monitoring plan of the registered PDD /1/. Critical parameters used for the determination

	of the emission reductions are: • Net electricity supplied to the grid /6/; • MFRC/PMUM data /7/; All data is in compliance with the figures stated in the monitoring report version 04 dated 18 June 2012 /2/ and ER spreadsheet /3/. The data management system has been set up in accordance with registered monitoring plan /1/. The correct transfer of data is checked by internal control process. The emission reductions are calculated using excel worksheet, and verified /3/. The QA/QC processes have been followed.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

In accordance with the "Inspection of Measurement and Measuring Instruments Regulation" which was published in the Turkish Official Gazette (No. 22000, dated 24/7/1994) by Turkish Ministry of Industry and Commerce, the inspection of meters needs to be undertaken every 10 years /15/. This is stated in the monitoring plan of the registered PDD of 17 November 2011, and in the monitoring report /1//2/. DNV therefore confirms that the meters were calibrated covering this monitoring period as per the registered PDD, as the next calibration time would be in year 2020.

3.6 The Assessment of data and calculation of emission reductions

DNV confirms that appropriate methods and formula for calculating baseline emissions, project emissions and leakage have been followed, and the assumptions, emission factors and default values that are applied in the calculation have been justified /58/.

As stated in the section 1.4, the emission reductions ER_y by the project activity during the monitoring period is the difference between the baseline emission, project emissions and leakage /58/.

$ER_y = BE_y - PE_y - L_y$

3.6.1 Baseline emissions

Baseline emissions (BE_y in tCO_2) is the baseline emission factor ($EF_{grid,CM,y}$ in tCO_2/MWh) times the net electricity supplied by the project activity to the grid ($EG_{facility,y}$ in MWh) /58/.

$EF_{grid,CM,y}$ is emission factor of the grid, which was calculated *ex-ante* and will not be updated during the first crediting period. $EF_{grid,CM,y}$ of the proposed project in the registered PDD is 0.59384 tCO_2/MWh, which has been verified to be consistent with the registered PDD /1/.

$EG_{facility,y}$ is the net electricity supplied to the grid by the proposed project, which is determined by the electricity supplied to the grid minus the imported electricity from the grid /1//2//58/,i.e. $EG_{facility,y} = EG_{export, main\ meter\ 1} + EG_{export, main\ meter\ 2} - EG_{import, main\ meter\ 1} - EG_{import, main\ meter\ 2}$, while y represents the monitoring period from 9 April 2010 to 31 December 2011.

And for the period of April to June 2010, the PMUM data directly deducted the electricity used for turbines testing, therefore the calculations of April to June 2010 is: $EG_{facility,y} = EG_{export, main\ meter\ 1} + EG_{export, main\ meter\ 2} - EG_{import, main\ meter\ 1} - EG_{import, main\ meter\ 2} - EG_{turbine\ testing\ PUMA\ data}$

The net electricity supplied by the project to the grid in this reporting period is as shown in the following table 3.

Table 2 Electricity supplied to the grid and imported from grid by the project (MWh)

	Exported electricity to the grid EG_{export}				*Imported electricity from the grid* EG_{import}		
	$EG_{export, main\ meter\ 1}$ + $EG_{export, main\ meter\ 2}$	*Values from MFRC/PMUM*	*Turbine Testing Values deducted by MFRC/PMUM data (already accounted in B)*	*Verified*	$EG_{import, main\ meter\ 1}$ + $EG_{import, main\ meter\ 2}$	*Values from MFRC/PMUM*	*Verified*
Period	*A*	*B*		*C=Min(A, B)*	*D*	*E*	*F=Max(D, E)*
Apr. 10	9 896.98	9 548.57	21.73	9 548.57	78.42	78.43	78.43
May 10	5 855.95	4 702.35	1 153.60	4 702.352	45.21	45.21	45.21
Jun. 10	12 098.91	9 671.86	2 427.08	9 671.86	35.57	35.57	35.57
Jul. 10	32 969.44	32 969.43	N/A	32 969.43	10.29	10.27	10.29
Aug. 10	28 572.79	28 572.8	N/A	28 572.79	20.67	20.67	20.67
Sep. 10	23 566.02	23 566.02	N/A	23 566.02	18.07	18.09	18.09
Oct.10	23 751.50	23 751.52	N/A	23 751.50	29.50	29.50	29.50
Nov.10	15 959.61	15 959.6	N/A	15 959.60	66.91	66.90	66.91
Dec.10	21 509.98	21 509.97	N/A	21 509.97	29.22	58.44	58.44
Jan. 11	21 264.09	21 264.09	N/A	21 264.09	53.69	53.69	53.69
Feb. 11	25 166.22	25 166.22	N/A	25 166.22	36.53	36.52	36.53
Mar. 11	24 387.29	24 387.29	N/A	24 387.29	26.43	26.44	26.44
Apr.11	28 258.94	28 258.94	N/A	28 258.94	16.56	16.56	16.56
May 11	20 423.79	20 423.79	N/A	20 423.79	27.60	27.66	27.60
Jun. 11	22 414.09	22 414.08	N/A	22 414.08	30.17	30.11	30.17
Jul.11	22 820.66	22 820.66	N/A	22 820.66	24.55	24.54	24.55
Aug. 11	45 986.28	45 986.3	N/A	45 986.28	0.84	0.85	0.85
Sept. 11	36 850.98	36 850.96	N/A	36 850.96	10.04	10.04	10.04

Oct.11	29 942.08	29 942.1	N/A	29 942.08	40.04	40.04	40.04
Nov. 11	34 285.85	34 285.84	N/A	34 285.84	37.34	37.33	37.34
Dec. 11	20 562.84	20 562.83	N/A	20 562.83	44.31	44.32	44.32
Total	**506 544.29**	**502 615.22**	**N/A**	**502 615.15**	**681.96**	**711.19**	**711.24**

The net amount of electricity generation and the resulting emission reductions are correctly reported in the final monitoring report version 04 dated 18 June 2012 /2/. The designed load factor is not specified in the registered PDD /1/. DNV verified that the monthly load factor for the proposed project is 36%, which is reasonable based on DNV's industrial knowledge. Hence, DNV was able to confirm the power generated during this monitoring period was reasonable.

The project has accounted for emission reductions generated by the proposed project from 9 April 2010 to 31 December 2011. In the ER calculation spreadsheet, the net electricity of year 2010 and 2011 is calculated separately, which is respectively 169 888.94 MWh (2010) and 332 014.87 MWh (2011) /3/. To be conservative regarding the emission reduction calculation, the project participant rounded down the above figure as 169 888 MWh (2010) and 332 014 MWh (2011) /3/, and therefore the total net electricity exported to the grid by the proposed project during this monitoring period was verified to be 501 902 MWh and the emission reductions for the same period at 298 051 tCO_2e /2//3/.

$EG_{facility,y} = EG_{output,y} – EG_{import,y}$ = 501 902 MWh, and

$BE_y = EF_{grid,CM,y} * EG_{facility,y}$ = 298 051 tCO_2e

3.6.2 Project emissions

The project emissions are regarded as zero according to the methodology ACM0002 version 12 /58/.

3.6.3 Leakage

There are no leakages that need to be considered in applying the methodology ACM0002 version 12 /58/.

3.6.4 Emission reductions

Therefore, the emission reductions in this monitoring period are:

$ER_y = BE_y - PE_y - L_y = 298\ 051 - 0 - 0 = 298\ 051\ tCO_2e$.

As outlined above, the input data for calculating the emission reductions, the calculating process and the result are complete and transparent. Therefore, DNV is able to confirm the accuracy of the emission reductions.

3.7 Monitoring of Gold Standard Sustainable Indicators

Additional parameters monitored are in accordance with the monitoring plan for sustainability indicators as per requirements referred in Gold Standard Annexure to PDD /63/ and registered PDD /1/. No substantial changes have been reported for the selected indicators during the verification period of the project.

I. Local/regional/global environment

3.7.1 Air quality

DNV confirmed through visual inspection during the site visit that at the project site the necessary road signs have been placed to request the proper use of the road, such as the speed limit sign and the careful loading/unloading sign among others. This is to minimize the dust dispersion and erosion during the excavation. DNV also interviewed the local villages who gave positive feedback concerning the measures taken by the project participant to reduce the dust during the construction process /64//65//66//67//68/.

To further reduce the dust after the construction of the project, the project participant signed the Rehabilitation of Road contract with Özyavuzlar İnşaat San.Ltd.Şti. in August 2010 to construct and rehabilitate the main and secondary roads within the area of project activity, and the work was completed in September 2010 /42/. The project participant also renewed the infrastructure and asphalt surface of the roads between İsmailli and Atçılar Villages after the construction of the project power plant in October 2010. The local village of İsmailli and Atçılar issued a statement to thank the project participant for renewing the roads on 20 October 2010 /41/. The references were provided to DNV during the verification process /41//42/.

3.7.2 Soil condition

DNV confirms that during the verification process, the project participant presented DNV the payment notification and forestation fee receipts issued by Regional Directorate of Forestry, Turkish Ministry of Environment and Forestry to the project participant on 7 August 2009, which demonstrated that the project participant paid the fee to replant of trees cut due to the construction of the proposed project /21/. It has been specified in the payment notification that the forestation fee is for the forestation of 291,144.76 square meter area /21/. To further address the question raised by GS, the project participant also provided DNV with the statement issued by the Ministry of Environment and Forestry, İzmir Regional Directorate of Forestry on 12 June 2012, which confirms that the forestry management will plant 48,500 trees after the generation license of the proposed project expires/53/.

According to the Sustainability Monitoring Plan of the GS Passport for the proposed project, the project participant should “remediate soil movements as a result of the construction of the project” /4/. The project participant provided DNV with the 2012&2013 Action Plan Protecting And Planting In and around the Aliağa Wind Farm issued by the project participant on 2 May 2012 /54/. It is stated in the “2012&2013 Action Plan” that 100 trees will be planted each year for year 2012 and 2013 for the propose project to remediate soil movements, while local villagers will be hired to plant the trees /54/. DNV confirms that the project participant presented DNV with the invoices issued by Oktay Sever Company to the project participant on 10 May 2012 for the purchase of 50 saplings and 20 flower seeds for the proposed project /55/. DNV also confirms that the project participant presented DNV with the payment receipts of 550 Lira for hiring four local villagers in May and June 2012 to re-plant the trees cut during the construction of the proposed project. Relevant photos were also presented to DNV together with the payment receipts /56/. 50 saplings have already been planted and the relevant photos were provided to DNV /56/. To fulfil the *2012&2013 Action Plan* that 100 trees should be planted in year 2012, 50 saplings will be planted in September 2012, and this will be further verified in the following verification.

Therefore it is in DNV's opinion that the project has been carried out according to the Sustainability Monitoring Plan of the GS Passport /4/, and the implementation of reforestration can be further checked via the site visit of the subsequent verifications.

Concerning the waste disposal of the proposed project, the project participant agreed with Nordex Enerji A.Ş. that any waste material resulted from the construction of the proposed project would be disposed of by Nordex Enerji A.Ş. /51/. The relevant invoices and national waste removal forms were provided to DNV during the verification process /23//24/ and DNV was able to confirm that the national waste removal forms include both the solid waste and the waste oil.

DNV could also confirm via the site visit that solid waste undergoes collection, where recyclables are separated and dispatched to recycling centres.

3.7.3 Other pollutant: Noise

Alka Environmental Laboratory issued an External Ambient Noise Measurement Report for Aliağa Wind Farm in June 2010 /36/. Alka Environmental Laboratory is an independent third party certified by Turkish Accreditation Agency /36/. The report is prepared in accordance with the Provisions of Article 14 of Environmental Law No. 2872; Ministry of Environment and Forestry Law No. 4856; and the Regulation for the Evaluation and Management of Environmental Noise /36/. The report confirmed that the maximum noise measured of the project is below the legal limits : 65 dBA (in day time), 60 dBA (in the evening) and 55 dBA (at night) /36/. As the reported was carried out by an independent third party accredited by Turkish government, and it is based on the data when all turbines started operation, DNV considers the result reliable and reflected the conditions at the project site.

3.7.4 Water quality and quantity

Same as the solid waste and the waste oil, the waste water is also disposed by Nordex Enerji A.Ş. as agreed between Nordex and the project participant /51/. The relevant disposal invoices were provided to DNV at the verification stage /24/. The project participant also provided DNV with the receipts for the utility of water issued by Erol Karakaplan, Atçılar Village in December 2010 and February 2011 /18/. The drinking water receipt samples from local shop of Yaman Ticaret, Aliağa were also provided to DNV, which is for the water purchased by the project participant for its employees working at the plant site during the construction period /19/. The Public Hygiene Centre of Turkish Ministry of Health issued a Drinking Water Quality Report on 19 December 2011 to confirm that the sample water of the proposed project site area is in compliance with the Regulation Concerning Water Intended for Human Consumption /20/.

In the Social Responsibility Report of Aliağa Wind Power Project provided to DNV during the verification process, it has detailed description that the project participant tried twice to help the neighbour village of Atçılar to find the water resource, as the village of Atçılar has been suffering from the lack of water for many years /38/. The first trial in December 2009 was unsuccessful, but the second trial in June 2011 was successful and the project participant found the water for Atçılar village /38/. The relevant photographs and invoices have been included in the Report /38/. Mr. Mehmet Akdeniz-Atcilan Muhtari, the head of Atçılar Village, joined the interview carried out on site visit by DNV verifier on 12 April 2012, and he confirmed that the water was found by the project participant and expressed his gratitude for that /64/. Therefore it is in DNV's opinion that the project

3.7.5 Biodiversity

As confirmed by the registered PDD and the validation report, the project complies with the terms of the EIA-exemption letter from Ministry of Environment and Forest /1//5/. It is also stated in the registered PDD that the project site is not located along the migratory route of birds /1/. Nevertheless, DNV could confirm via the site visit that red colour were painted on the tips of the turbine blade for the proposed project, and the flashing lights were installed on the nacelles' tops to increase turbine visibility at night, which is consistent with that in the monitoring plan and monitoring report /1//2/.

According to the registered PDD "Regular patrols of the site are made by the company's security guards on each shift. The guards are instructed to look out for any dead birds (and bats) that may have been struck by the turbines. If such birds (or bats) are found, these are photographed and recorded in a book that is kept at the site office. If no birds (or bats) are found on a shift, that will also be recorded /1/. DNV checked the Security Logbook at the project site and found that the logbook was started in November 2011 /39/. The plant manager explained that it was first understood by the plant employees that if there was any bird found, this should be recorded, but since no bird were found in the past, no record was kept /70/. The project participant issued two notifications later addressing this issue, and requesting a daily record to be kept no matter birds were found or not in June 2011 and November 2011 /40/. Therefore, the record started since November 2011 /39/. DNV interviewed the local villagers and they confirmed that no bird body were found around the project site, so DNV accepted the explanation of the plant manager, and raised a FAR for the DOE to check if the security logbook is properly recorded for next monitoring period.

II. Social Sustainability and Development

3.7.6 Quality of Employment

The project participant provided DNV with records of Health Check-up Report of Technical Personnel issued by State as well as private hospitals in Aliağa Town, and these reports confirmed that the technical personnel could continue their current work /47/. İDEAL Occupational Health and Safety Private Company, which is an accredited and independent third party, also issued the Aliağa Occupational Health and Safety Report, confirming that the proposed project complies with Labour Law No. 4857, and the Regulation of the Ministry of Labour and Social Security No.: 25426 on occupational safety and health services. Meanwhile, the Report also identifies the potential risks and suggested actions for the proposed project on 16 November 2011, for project participant to further improve the health and safety situation for the proposed project /48/. This Report is prepared by the assigned specialists from IDEAL for the proposed project.

In addition to the health and safety system, the project participant provided services to employees of the propose project, such as the personnel bus services and the daily meal. The relevant contracts and the payment receipts were provided to DNV during the verification process /44//45//46/. Furthermore, the project participant also organized extensive trainings for the employees of the proposed project based on the work requests, including the technical training, the safety training, the management of high voltage and facilities training, the wind turbine training, etc. DNV confirms that all the training certificates have been provided at the verification stage /27//28//29//30//31//32//33//34//35/.

3.7.7 Quantitative employment and income generation

It is stated in the registered PDD that the project should provide employment opportunities for local people with wages above the local average /1/. There are in total 8 local employed in the proposed project. DNV verifier interviewed two of them who were at the plant site on 12 April 2012 when the site visit was carried out, and they gave positive feedback for working conditions and the compensation for their work /70//71/. The project participant also provided the annual salary report for the employees working at the plant site, and the average salary of the local people is above that stated in the Structure of Earnings Survey 2010 for Aegean Region, which is the latest information available published by Turkish Statistical Institute /25//26/.

3.7.8 Livelihood of the poor

In addition to the employment opportunities provided to the local people for the proposed project, the project participant contributed to the livelihood of the local poor people in several ways, which is listed in the Social Responsibility Report of Aliağa Wind Power Project provided to DNV during the verification process /38/. First, in June 2011, the project participant found the water resource in the neighbour village of Atçılar, where there had been a water shortage for many years. The village of Atçılar issued a letter of thanks to the project participant for this. Second, the project participant donated computers and picture projectors to the classes of İsmailli Elementary School in June 2011, which is the nearest school to the project site. Third, the project participant sponsored the course fee for four students from İsmailli Elementary School for a six-day course which took place in Ege University Astronomer Summer School in Izmir. Fourth, the project participant provided Ramadan (religious festival in Turkey) Food Package and Cash Support to all the personnel of Aliağa Wind Power Project in year 2010 and 2011. Fifth, in September 2011, the project participant donated tables, chairs and armchairs to the Aliağa Disabled Rehabilitation Association for the "Abled Cafe" which is located in the Zeytinli Park in Aliağa Town. Disabled people could work in this Cafe. The relevant photographs, invoices, donation receipts and thanks letter of the above activities have been scanned and included in the Social Responsibility Report of Aliağa Wind Power Project /38/. DNV therefore could confirm that the project made various contributions to the poorest people in the vicinity of the project area, as requested in the registered PDD /1/.

3.7.9 Public health and safety

DNV could confirm via the site visit that the project site is secured to safeguard the public from potential electricity-related risks. All the turbines are fenced at the project site to avoid any third party injury or accident related to high voltage. The switchgear area, the main control chamber, and the substation are also fenced in and guarded. These precautions are taken to protect the public from any potential high voltage hazard, and it is consistent with that requested in the registered PDD /1/.

It can be concluded that Gold Standard Sustainable Indicators have been properly recorded and no negative deviations with regard to the target of the selected parameters can be reported. The interviews with several stakeholders during the on-site assessment have not resulted in any complaints, the overall feedback to the project was positive.

3.8 Quality of evidence to determine emission reductions

DNV confirms that a complete set of data for this monitoring period was available to be verified and was in accordance with the registered PDD dated 17 November 2011 /1/.

All data in the project site are stored in an electronic server of the power plant that has a regular and systematic backup. The monitoring data recorded from the substation are stored as a hard copy as well as a soft copy and will be kept at least for 2 years after the end of the last crediting period /1//2/.

All necessary documentation were collected, referenced and aggregated and were easily accessible in hard-copy and electronic format. Measurements are performed by calibrated equipment, and the key data were cross-checked via other sources. No assumptions are used that have any material influence on reported emission reductions.

The only monitoring indicator is the net electricity supplied to the grid by the proposed project, which has been monitored with calibrated electricity meters.

Critical parameters used for the determination of the emission reductions were checked and confirmed during the site visit, which are listed below:

- Monthly statistics transcribed from the original data of the electricity imported and output from the grid /6/;
- Hourly and daily readings from the bidirectional meter of electricity output to and imported from the grid for the project activity /52/;
- Electricity data generated in MFRC/PMUM from April 2010 to December 2011 /7/.

During the site visit on 12 April 2012 and document review, all internal records regarding the electricity produced by Aliağa Wind Farm and dispatched to the grid, and the MFRC/PMUM data related to the proposed project during this monitoring period were assessed by DNV /6//7/. DNV was able to verify that Aliağa Wind Farm has an automated control system where the operation and electricity generated, consumed and exported to the grid is continuously monitored.

All the data is in compliance with the figures stated in the monitoring report, emission reduction spreadsheet and the registered PDD of 17 November 2011/1/. The monthly recorded data were correctly transferred to the spreadsheet /3//6/.

It is concluded that in this monitoring period, the evidence for determination of ER is sufficient and reasonable. DNV was able to confirm that the result of ER calculation is reliable /3/.

3.9 Management system and quality assurance

Bergama RES Enerji Üretim A.Ş. is responsible for operating the wind power plant and monitoring the project activity in accordance with the Monitoring Manual prepared and updated for the use of Bergama RES Enerji Üretim A.Ş. The management system for the project has been verified to be in place by DNV on site. The organization structure with the responsibilities, personnel competencies, monitoring procedure and monitoring management have been properly identified and put into operation.

DNV confirmed through the site visit that the monitoring and reporting of electricity data is in accordance with the established operational procedures.

Data was collected according to the well-defined data collection procedures:

- Data of electricity exported is automatically recorded on a daily/hourly basis;
- The data is recorded and consolidated hourly by the local computer of the power plant;
- These reports are monthly consolidated and submitted to the management department. The electricity data, including the electricity dispatched to the grid and imported from the grid by the power plant, is compared with the electricity data generated by MFRC/PMUM /6//7/.
- The electric circuit (Single Line Diagram) at the power plant, including the connection with the grid, and the electricity metering procedures of electricity generation of the project delivered to the grid were verified during the site visit and considered adequate /14/.
- These reports are monthly consolidated and submitted to the management department. The electricity data, including the electricity dispatched to the grid and imported from the grid by the power plant, is compared with the electricity data generated by MFRC/PMUM /6//7/.
- An authorized person from the grid operator (TEİAŞ) visits the project site for the monthly inspection in order to check the accuracy of the meters and back-up meters. This is performed per TEİAŞ standards, and the representative from TEİAŞ will also sign the monthly meter reading /6/.
- An excel spreadsheet is used to calculate project emission reductions. The project participant collects data for electricity generation (EGy). Generation is measured and recorded monthly through two high precision meters sealed and controlled by TEIAS (according to their stringent regulations). Data may also be cross-checked against MFRC/PMUM values /3//6//7/.

DNV confirms that the responsibilities and authorities in the management and operational system for monitoring and reporting are in accordance with the responsibilities and authorities stated in the registered PDD and monitoring plan /1//2/.

4 VERIFICATION STATEMENT

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions that have been reported for the “Aliağa Wind Farm Project in Turkey" (Gold Standard Project ID: GS735) for the period 9 April 2010 to 31 December 2011.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project.

It is DNV’s responsibility to express an independent verification statement on the reported GHG emission reductions from the project. DNV does not express any opinion on the selected baseline scenario or on the validated and registered PDD.

DNV conducted the verification on the basis of the monitoring methodology ACM0002 (version 12), the monitoring plan contained in the registered Project Design Document of 17 November 2011 and the monitoring report (Version 04) dated 18 June 2012. The verification included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

DNV’s verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. DNV planned and performed the verification by obtaining evidence and other information and explanations that DNV considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions of the “Aliağa Wind Farm Project in Turkey (Gold Standard Project ID: GS735) for the period 9 April 2010 to 31 December 2011 are fairly stated in the monitoring report (Version 04) dated 18 June 2012.

The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 (version 12) and the monitoring plan contained in the registered PDD of 17 November 2011.

DNV Climate Change Services AS is able to verify that the emission reductions from the “Aliağa Wind Farm Project in Turkey during the period 9 April 2010 to 31 December 2011 amount to 298 051 tonnes of CO_2 equivalent.

Oslo, 2012-06-22

Wen Bo
Verifier

Michael Lehmann
Director of Services and Technologies
DNV Climate Change Services AS

5 REFERENCES

Documents provided by the Project Participants that relate directly to the GHG components of the project. These have been used as direct sources of evidence for the periodic verification conclusions, and are usually further checked through interviews with key personnel.

/1/ EcoSecurities International Limited: *Project Design Document of Aliağa Wind Farm* version 2.5 dated 17 November 2011.

/2/ EcoSecurities International Limited: *Monitoring Report of Aliağa Wind Farm* for the period of 9 April 2010 to 31 December 2011, version 01 of 4 April 2012 and version 02 of 19 April 2012, version 03 of 26 April 2012 and version 04 of 18 June 2012

/3/ EcoSecurities International Limited: *ERs calculation spreadsheet*

/4/ EcoSecurities International Limited: *Gold Standard Passport for Aliağa Wind Farm*

/5/ Bureau Veritas: Validation report for *Aliağa Wind Farm* version 06 dated 15 March 2012

/6/ Bergama RES Enerji Üretim A.S.: *Aliağa monthly meter reading from April 2010 to December 2011*

/7/ Market Financial Reconciliation Center (MFRC/PMUM): *Data generated in MFRC/PMUM from the from April 2010 to December 2011 for Aliağa Wind Farm*

/8/ EcoSecurities International Limited: *Monitoring Manual of Aliağa Wind Farm* version 01 dated April 2012

/9/ Bergama RES Enerji Üretim A.Ş.: *Sustainable Development Survey Feedback from local female villages for Aliağa Wind Farm* dated 28 June 2011

/10/ Bergama RES Enerji Üretim A.S.: *Meeting minutes for Aliağa Wind Farm meeting with local women* dated 28 June 2011

/11/ Turkish Electricity Transmission Company (TEİAŞ) and Bergama RES Enerji Üretim A.Ş.: *Aliağa WPP Grid Usage Agreement* dated 24 February 2010

/12/ Energy Market Regulatory Authority(EMRA): *Aliağa Electricity Generation License* dated 17 July 2008

/13/ Kesir Mühendislik Elektrik A.Ş.: *Calibration of the meters used in the Aliağa Wind Farm(meter no.53031823, 53031824, 53031825, 53031826)* dated 2 February 2010

/14/ TEİAŞ and Bergama RES Enerji Üretim A.Ş.: *Aliağa WEPP Single Line Diagram* dated 26 October 2010

/15/ Turkish Ministry of Industry and Commerce: *Inspection of Measurement and Measuring Instruments Regulation* dated 24 July 1994

/16/ Kesir Engineering: *First Index Protocol issued at the time of installation of the meters (meter no.53031823, 53031824, 53031825, 53031826)* dated 9 April 2010 and 26 October 2010

/17/ Regional Directorate for State Hydraulic Works, Turkish Ministry of Environment and Forestry: *Underground Water Etude for the water-well in Atçılar Village* dated 8 June 2010

/18/ Atçılar Village: *Receipts for Utility Water* dated 8 December 2010 and 7 February 2011

/19/ Aliağa Local Shop: *Sample Receipts for Drinking Water* dated 3 August 2010 and 26 December 2011

/20/ Public Hygiene Centre, Turkish Ministry of Health: *Drinking Water Quality Report*

confirming that the sample water is in compliance with the "Regulation Concerning Water Intended for Human Consumption" dated 19 December 2011

/21/ Regional Directorate of Forestry, Ministry of Environment and Forestry: *Payment notification and the bank receipt for the payment for forestation fee* dated 7 August 2009

/22/ Vacuum Truck Service, Yenişakran Municipality: *invoice for the transportation of waste to cesspool for 16 out of the 21 months from April 2010 to December 2011*

/23/ Ministry of Environment and Forestry: *Disposal of Nordex Turbines' Wastes National Waste Removal Form with no date specified*

/24/ Nordex Enerji A.Ş.: *Invoices of Disposal of Nordex Turbines' Wastes* in year 2010

/25/ Turkish Statistical Institute: *TurkStat, Structure of Earnings Survey, 2010* www.tuik.gov.tr/IcerikGetir.do?istab_id=166

/26/ Bergama RES Enerji Üretim A.Ş.: *Monthly salary report for the employees of Aliağa Wind Farm for year 2010 and 2011*

/27/ Nordex Energy GmbH: *Training Certificate for the employees of Aliağa Wind Farm for Concycle Wind Training* held on 14 to 19 June 2010, and 1 December 2010

/28/ Nordex Energy GmbH: *Introduction to Service Training from 15 to 19 February 2010*

/29/ Nordex Academy: *Training Certificate for the employees of Aliağa Wind Farm for Service Basic and Turbine Technology from 21 June to 9 July 2010*

/30/ Triowind: *Training Certificate for the employees of Aliağa Wind Farm for theoretical and practical safety instruction training carried out in 2009, 2010 and 2011*

/31/ Yaşar University: *Technique of High Voltage Training certificate from 4 to 26 December 2010*

/32/ TMMOB Chamber of Electrical Engineers: *Training of Management in High Voltage Facilities* dated 30 May 2011

/33/ Bureau Veritas: *Occupational Health and Safety Law Awareness Training Certificate from 25 to 26 November 2010*

/34/ A.Serdar ANLAS: *Basic Safety Training Certificate on 20 March 2010*

/35/ Poliya Polyester Industry and Trade Ltd STi.: Certificate of the Theoretical and Practical Training Seminar in Composite Wind Turbine on 29 to 30 June 2011

/36/ Alka Environmental Laboratory (accredited/independent third party): *Noise Measurement Report* dated 29 June 2010

/37/ Bergama RES Enerji Üretim A.Ş.: *Current Employment Information Summary of Aliağa Wind Farm*

/38/ Bergama RES Enerji Üretim A.Ş. and Bilgin Enerji Yatırım Holding A.Ş.: *Social Responsibility Report for Aliağa Wind Farm* dated March 2012

/39/ Bergama RES Enerji Üretim A.Ş.: *Security Logbook for recording if there is any bird found around the project site area starting since 11 November 2011*

/40/ Bergama RES Enerji Üretim A.Ş. and Bilgin Enerji Yatırım Holding A.Ş.: *Internal notification to security guards of Aliağa Wind Farm that finding of birds should be photographed and recorded in security logbook* dated 7 June 2011 and 10 November 2011

/41/ Memorandum signed by Atçılar and Yuntdağ Village, Bergama RES Enerji Üretim A.Ş. and individual Construction Technician Contractor: *The renewal of the*

infrastructure and asphalt surface of the roads between İsmailli and Atçılar Villages which were corrupted during the construction of Aliağa Wind Farm dated 20 October 2010

/42/ Bergama RES Enerji Üretim A.Ş. and Özyavuzlar İnşaat San.Ltd.Şti.: *Rehabilitation of Roads Contract* signed 20 August 2010

/43/ DEWI Gmbh: *Site-related Wind Potential Analysis and Energy Yield Assessment at the site Aliağa*

/44/ Osman Duman Yemek Tabildot Tic.Ltd.Şti. and Bergama RES Enerji Üretim A.Ş.: *Contract for the personnel meals (breakfast, lunch, dinner) of Aliağa Wind Farm* dated 1 August 2010

/45/ Osman Duman Yemek Tabildot Tic.Ltd.Şti.: *sample receipts and weekly menu for the daily meal service for employees of Aliağa Wind Farm* dated 7, 14, 21, 28 of August 2011, and 7, 14,21, 28 of February 2012

/46/ Sen-ay Taşımacılık Ltd. Şti. and Bergama RES Enerji Üretim A.Ş.: *Contracts for the transport service for employees of Aliağa Wind Farm in year 2010 and year 2011*

/47/ State and Private Hospitals in Aliağa Town: *Health Check-ups of Technical Personnel of Aliağa Wind Farm in year 2011*

/48/ İDEAL Occupational Health and Safety Private Company (accredited/independent third party): *Aliağa Occupational Health and Safety Report carried out 16 November 2011*

/49/ TEİAŞ and Bergama RES Enerji Üretim A.Ş.: *Aliağa Wind Farm Deduction Record for period from April to June 2010*

/50/ DEWI Gmbh: *Company profile*
http://www.dewi.de/dewi/index.php?id=35

/51/ Bergama RES Enerji Üretim A.Ş. and Nordex Enerji A.Ş.: *Maintenance and Service Agreement Premium* dated 8 May 2009

/52/ Bergama RES Enerji Üretim A.Ş.: *Log book for hourly electricity generation of Aliağa Wind Farm for this monitoring period from 9 April 2010 to 31 December 2011*

/53/ İzmir Regional Directorate of Forestry, Turkish Ministry of Environment and Forestry: *statement to confirm that the forestry management will plant 48,500 trees after the generation license of Aliağa Wind Farm project expires* issued on 12 June 2012

/54/ Bergama RES Enerji Üretim A.Ş.: *2012&2013 Action Plan Protecting And Planting In and around the Aliağa Wind Farm* dated on 2 May 2012,

/55/ Oktay Sever Company: *Invoices of 50 saplings and 20 flower seeds issued to Bergama RES Enerji Üretim A.Ş.* dated 10 May 2012

/56/ Bergama RES Enerji Üretim A.Ş.: *Payment receipts of 550 Lira for hiring four local villagers in May and June 2012 to re-plant the trees cut during the construction of the proposed project, as well as the relevant photos for the tree planting process..*

Background documents related to the design and/or methodologies employed in the design or other reference documents.

/57/ CDM Executive Board: *Validation and Verification Manual version 01.2*

/58/ CDM Executive Board: *ACM0002 " Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version* 12

/59/ CDM Executive Board: *Tool to calculate baseline, project and/or leakage emissions from electricity consumption Version 01*

http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v1.pdf

/60/ IPCC: *Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories Reference Manual*.

/61/ The Gold Standard: *Gold Standard Requirements version 2.1*

/62/ The Gold Standard: *Gold Standard Toolkit version 2.1*

/63/ The Gold Standard: *Gold Standard Annexes to Toolkit version 2.1*

Persons interviewed during the initial verification, or persons who contributed with other information that are not included in the documents listed above.

/64/ Mehmet Akdeniz-Atcilan Muhtari, head of the village

/65/ Halilibrahim Duyar, villager

/66/ Naim Akdeniz, villager

/67/ Selim Akdeniz, villager from Atallar village and employee of Aliağa Wind Farm

/68/ Yusuf Snder, villager from Atallar village and employee of Aliağa Wind Farm

/69/ Burcu Kılıç, Verification Project Manager, Bergama RES Enerji Üretim A.Ş.

/70/ Burhan Kıraç, Plant Manager, Bergama RES Enerji Üretim A.Ş.

/71/ Amin Bekai, Project Manager, EcoSecurities International Limited

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APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
N/A	N/A	N/A	N/A

Clarification requests

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 1	In the monitoring report dated 4 April 2012 (version 01), it says that "the actual emission reductions achieved are approximately 23.0% less in 2010, and 12.5% more in 2011 when compared to the estimated values in the PDD." The project participant is requested to clarify the reasons for difference between the estimation in the PDD and the actual emission reduction in the verification period.	As with any renewable resource, there is a high degree of uncertainty. As such, prior to making a considerable investment in a wind farm, project developers commission detailed and extensive project micro-siting reports which examine wind patterns and probability (to assist in placement of turbines). In the Project's, micro-siting report, under the section "probability of exceedance of energy yields" (which includes assumptions from 5-95% probability), 2011 actual wind generation values fall under the 30% probability of exceedance (i.e. 332.5 GWh per annum). The relevant pages of the micro-siting report accompany this response. The relevant section of the Monitoring Report has been amended to further explain the difference between predicted and actual wind.	DNV confirms that the project participant provided DNV with the Site-related Wind Potential Analysis and Energy Yield Assessment Aliağa Wind Farm project, which was carried out by DEWI Gmbh, an accredited independent third party /43//50/. The Assessment examines wind patterns and probability commission to assist the placement of turbines via detailed and extensive project micro-siting measurements. The Assessment states that "probability of exceedance of energy yields" is 30% when the electricity generation will be 332.5 GWh per year. As the electricity generation of year 2011 is 332.015 GWh, the generation values fall under the 30% probability of exceedance /43/. Considering the high uncertainty for renewable resource, DNV considers the extra generation of electricity in year 2011 is within reasonable range. Therefore the CL is closed.

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 2	One diesel generator is identified during the site visit as a backup in case of emergency. The project participant is requested to clarify how frequent the diesel generator is used and if the emission from the diesel generator is taken into consideration during the emission reduction calculation to make the calculation most conservative.	As demonstrated to the verifying DOE during the site visit (12/04/2012), the total operating hours of the back-up diesel generator from *installation* (till 12/04/2012) was only 65.1 hours (a photograph of the hour totaliser on the genset, taking on 12/04/2012 accompanies this response). Given that the genset's capacity is 88 kW (copy of specifications was shown to verifying DOE on 12/04/2012, and will accompany this response), assuming conservatively that the genset has operated for these 65.1 hours at full load (*highly unlikely*), the total electricity generated was [65.1hrs x 88kW]/1,000kW/MW = 5.73 MWh. Using this value in conjunction with a *conservative* emission factor of 1.3tCO_2e/MWh (per "Tool to calculate baseline, project and/or leakage emissions from electricity consumption"), the result is 7.45tCO_2e, which represents 0.0025% of the total claimed emission reductions (i.e. *much less than the permitted (by VVM) 1%*). As such, no adjustment is required.	DNV confirms that the operating hours of the back-up diesel generator is 65.1 hours by checking it during the site visit. And the project power plant used diesel generator in case of emergencies, stops or lack of energy. DNV also confirms through the site visit that the genset is 88 kW. According to the IPCC 2006 guidelines, the default CO_2 emission factor for diesel is 0.26676 tCO_2/MWh /59/. The genset's energy efficiency is 0.37. The total emission of the genset for this monitoring period is from 9 April 2010 to 31 December 2011 is: 0.26676 tCO_2/MWh x 0.088 MW x 65.1 h / 0.37 = 4.13 tCO_2 Considering that the total emission for this monitoring period, which is 298 051 CO_2, the emission of the diesel generator is 0.0014% of the total emission for this monitoring period. Therefore, in accordance with VVM paragraph 77, the emissions from the diesel generator do not contribute for more than 1% of the emission reduction for this monitoring period /57/, hence DNV considers appropriate not to discount the emission due to the negligible utilisation of the back-up diesel generator. DNV also verified the calculation approach applied by the project participant, and could confirm that according to the Tool to calculate baseline, project and/or leakage

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 2	To be continued		emissions from electricity consumption, the *conservative* default values of the emission factor is defined as 1.3 tCO_2/MWh and the calculation of 65.1hrs x 0.088MW* 1.3tCO_2/MWh = 7.45tCO_2 which represents 0.0025% of the total claimed emission reductions. The calculation in both ways shows that the emissions from the diesel generator do not contribute for more than 1% of the emission reduction for this monitoring period /57/, and therefore draws the same conclusion of not to discount the emissions of the back-up diesel generator due to the negligible utilisation according to VVM paragraph 77 /57/. Therefore, the CL is closed.
CL 3	It is mentioned in the PDD (version 2.5) as well as in the monitoring report (version 01) that "in addition to this statutory requirement, an authorized person from the grid operator (TEİAŞ) visits the project site for the monthly inspection in order to check the accuracy of the meters and back up meters." The project participant is requested to provide the evidence showing that the result of the monthly checking by the authorized person from the grid operator (TEİAŞ)	Electricity readings for both main and back-up meters are issued monthly and signed by both TEİAŞ and the Project Developer. Copies of these readings showing the TEİAŞ signatures/approvals were shared with the DoE even prior to the site visit (i.e. on 04/04/2012). A confidential spreadsheet (not for publication) was e-mailed to DOE (17/04/2012) showing all cross-checks.	DNV confirms that the monthly meter reading have been provided by the project participant which were signed both by the project participant and the grid operator /6/. And a confidential spreadsheet was also sent by project participant on 17 April 2012 for crosschecking. Therefore, the CL is closed.

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 4	In the PDD version 2.5 dated 17 November 2011 it says "In accordance with the Article 9 (b) of the "Inspection of Measurement and Measuring Instruments Regulation" which was published in Turkish Official Gazette dated 24/7/1994 and No.22000, the inspection of meters needs to be done in every 10 years. Since the project has commenced the operation in August 2010, the inspection of meters will be done in 2020." The project participant is requested to clarify if the 10 years calibration can fulfill the Gold Standard request.	The fact that the project was registered under the Gold Standard with these meter calibration conditions *is sufficient proof* that the Gold Standard accepts the 10-year calibration period (which is Turkish Law). Other registered Gold Standard projects have successfully been issued emissions reductions with this 10-year calibration interval.	DNV confirms that the 10 years calibration frequency is stated in the "Inspection of Measurement and Measuring Instruments Regulation" /15/, and DNV accepts the explanation from the project participant that the registration of the proposed project proves that the 10 year calibration frequency is accepted by the Gold Standard /1/ Therefore, the CL is closed.
CL 5	In the emission reduction calculation workbook sent to DNV by the project participant, the emission reduction calculation of April 2010 till June 2010 is not consistent with the formula used the workbook. The project participant is requested to clarify the inconsistency in the ER calculation. Furthermore, the project participant is requested to check if the net electricity exported by the project to the grid during the monitoring period is consistent with that in the monitoring report (version 01).	- During the commission resting period, a quantity of electricity produced was 'deducted' by PMUM. Proof of this deduction accompanies this response. The ER workbook has been amended with an additional column to highlight this deduction; - Electricity discussed in the Monitoring Report is net – i.e. electricity exported minus electricity imported.	DNV checked the updated Workbook sent by the project participant and could confirm that the calculation is consistent with the formula/3/. The project participant also provided DNV with the Aliağa Wind Farm Deduction Record for period from April to June 2010 /49/. Furthermore, DNV confirms that the net electricity exported by the project to the grid during the monitoring period is consistent with that in the monitoring report version 04 dated 18 June 2012 /2//3/. Therefore the CL is closed.

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 6	In the monitoring report dated 4 April 2012 (version 01), both "Aliaga Wind Farm" and "Aliaga Wind Power Plant Project" are used as the project name in the report. The project participant is requested clarify which one is the right name for the proposed project activity.	- The appropriate corrections have been made, and only "Aliaga Wind Farm" is used throughout the documents for consistency.	DNV checked the updated monitoring report and could confirm that the version 04 of the monitoring report has consistent name for the proposed project /2/. Therefore the CL is closed.
CL 7	The emission factor for the proposed project is 0.59384 tCO_2/MWh in the PDD, while it is 0.594 tCO_2/MWh in the monitoring report dated 4 April 2012 (version 01). The project participant is requested to clarify the difference between the EF used in the PDD and that used in the MR (version 01).	- An emission factor of 0.59384 tCO_2/MWh has been employed throughout the project documentation for conservativeness and consistency.	DNV checked the updated monitoring report and could confirm that the version 04 of the monitoring report has the emission factor of 0.59384 tCO_2/MWh used for the proposed project, and the same emission factor is used the emission reduction calculation workbook /2//3/. Therefore the CL is closed.
CL 8	In the monitoring report dated 4 April 2012 (version 01), the electricity meters are mentioned in different ways, including the main meter and the auxiliary meter, the meters and back-up meters, the main meters and auxiliary meters, etc. The project participant is requested to clarify the name of meters and the number of the meters in the monitoring report.	- "main" and "back-up" have been employed throughout the revised project documents for consistency.	DNV checked the updated monitoring report and could confirm that the version 04 of the monitoring report has consistent names for the meters /2/. Therefore the CL is closed.

Forward Action Requests From Previous Validation/Verification

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
FAR 1	A FAR is pending from validation of the proposed project activities, requesting the project participant to include more female in the stakeholder consultation process /5/. The project participant is requested to explain what measure was taken to include different gender in the stakeholder consultation process.	To address the issue raised by the FAR at the validation step, the project participant organized a meeting in June 2011 for local women, and introduced to the local women about this project, and also sent out Sustainable Development Survey during the meeting, asking women's views on indicators such as the air quality, water quality and quantity, soil condition, other polluters, biodiversity, quality of employment, poverty, income generation, technology transfer, etc. The feedback shows that local women supported this project and considered the project helpful in providing more accessible electricity and employment opportunities. They also hoped for free electricity and more employment opportunities. The project participant explained during the meeting that it was not possible to have the free electricity but they would give priority to local villages whenever possible concerning the employment opportunities.	DNV confirms that the meeting minutes of the local women stakeholder consultation as well as the Sustainable Development Survey was provided by the project participant, and the feedback of the Survey was consistent with summary of the project participant /9//10/. Concerning the number of questionnaires received, the project participant explained that the local villages are situated in remote areas, and many women at senior age from the local villages could not read or write. During the DNV site interviews with the local villagers, it was confirmed that young people left the villages for employment opportunities in big cities /64/, and old women remained in the villages not actively communicated with the outside world. Taking this into consideration, and also based on the local expertise in Turkish society, DNV considers the seven feedbacks is reasonable. Therefore, the FAR is closed.

Forward Action Requests From This Verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
FAR 1	DNV checked during the site visit the security log book of site patrols concerning birds found around the site area addressing the request of biodiversity for the category of sustainable development parameters, and found the record only started from November 2011. The project participant explained that no record was made if no bird was found during the site patrols in the past, yet this was corrected since November 2011 by keeping a record even if no birds were found. It should be checked during next verification that the log book has been continuously filled in concerning the biodiversity after November 2011 for next verification period.	The Project Developer will ascertain that, going forwards, on-site security patrols make the relevant logbook entries whether dead birds are found or not.	It should be checked during next verification that the log book has been continuously filled in concerning the biodiversity after November 2011 for next verification period.

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APPENDIX B

CURRICULA VITAE OF THE VERIFICATION TEAM MEMBERS

Wen, Bo holds a Master Degree in International Business and a Master Degree in Business Administration. Having an overall working experience of more than 10 years, Ms. Wen worked for auto industry before joining DNV, covering product management and fleet sales marketing. She has experience of around 4 years in validation and verification of numerous CDM projects since she joined DNV in year 2008.

Her qualifications and experience in CDM demonstrate her sectoral competence in the renewable energy sector.

Agnes Dudek holds a PhD Degree in applied physics. Having an overall experience of around 11 years. Prior to joining DNV having 7 years' experience in scientific research covering satellite remote sensing, mesoscale weather forecast modelling and air pollution dispersion modelling and monitoring.

She has experience of around 4 years in validation and verification of numerous CDM projects. Her qualification, research experience and experience in CDM demonstrate her sufficient sectoral competence in energy generation from renewable energy sources.

Elfride Covarrubias is in charge of Climate Change and Environmental Services in South Europe, Africa and Middle East in DNV.Ms. Covarrubias holds two Master Degrees, once on Pollution & Environmental Control, and on Environmental Science, she holds the Bachelor's Degree in Environmental Engineering. She has 20 years of working experience at international level.

She has rich experience in validation, and did many projects in Turkey.

Kuzgun, Melih Mehmet is working in Statutory Services, DNV Maritime. He gained the Bachelor of Engineering in Istanbul Technical University, majoring in Naval Architecture & Ocean Engineer and a Master of Science degree in Naval Architecture.

Mr. Mehmet joined the project to support reviewing the documents and evidences presented in Turkish, as well as to provide local knowledge input about Turkey.

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