




Verification and certification report form for CDM project activities

(Version 02.1)

VERIFICATION AND CERTIFICATION REPORT

Title and UNFCCC reference number of the project activity	Mampuri Wind Power Project 9074
Version number of the verification and certification report	02
Completion date of the verification and certification report	07/04/2018
Monitoring period number and duration of this monitoring period	3 rd Monitoring period From 01/01/2016 to 31/12/2017
Version number of monitoring report to which this report applies	03
Crediting period of the project activity corresponding to this monitoring period	01/01/2013 to 31/12/2022 (Fixed)
Project participant(s)	Senok Wind Power (Private) Limited Asian Development Bank, as trustee of the Future Carbon Fund ; Swedish Energy Agency
Host Party	Sri Lanka
Applied methodologies and standardized baselines	AMS-I.D. ver. 17 - Grid connected renewable electricity generation
Mandatory sectoral scopes linked to the applied methodologies	Scope 01: Energy Industries (renewable/non-renewable sources)
Conditional sectoral scope(s) linked to the applied methodologies	NA
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	37,536 tCO ₂ e
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	33,254 tCO ₂ e
Name and UNFCCC reference number of the DOE	KBS Certification Services Pvt. Ltd. E0051

Name, position and signature of the approver of the verification and certification report



Kaushal Goyal
Managing Director

SECTION A. Executive summary

>>

KBS Certification Services Pvt. Ltd. has performed the third periodic verification of the CDM project 'Mampuri Wind Power Project' and UNFCCC Ref. Number 9074. The verification includes confirming the implementation of the monitoring plan of the registered PDD and the application of the monitoring methodology as per AMS I.D. "Grid Connected Renewable Electricity Generation" Version 17.A site visit was conducted to check the implementation of registered monitoring plan and verify the data submitted in the monitoring report.

Purpose:

The purpose of this verification exercise is, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the revised approved PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on review of monitoring report, supporting information and

- (a) The registered PDD, including the monitoring plan and the corresponding validation opinion(s);
- (b) Previous verification reports, deviation requests, requests for revision of monitoring plan;
- (c) Monitoring report for the monitoring period under verification including CER calculations sheets and all supporting documents;
- (d) The applied monitoring methodology;
- (e) The applied standardized baseline (if applicable);
- (f) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- (g) All information and references relevant to the project activity's resulting in emission reductions

The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

KBS has based on the recommendations in the latest version of CDM Validation and Verification Standard, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

Description of project:

The project activity is the installation of 8 numbers of 1.25 MW wind turbine generators with the total capacity of the 10 MW. The electricity generated from the project is supplied to the National grid through a Small Power Purchase Agreement (SPPA) signed with Ceylon Electricity Board (CEB). Since the electricity replaces electricity generated from grid based power plant which consist considerable amount of fossil fuel based power plant, the project reduces CO2 emission associated with the grid based power plants.

Methodology:

KBS follows a rule based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the monitoring report of the project activity is made publicly available at UNFCCC website as per CDM procedures. A desk review of the project documentation is undertaken, which is followed by an onsite visit by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and version 01 of CDM VVS for project activities, to capture the assessment of applicable CDM requirements viz., version 01 of CDM Project Standard, revised approved PDD, applied methodology/ies, applied standardized baseline and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and

compliances by the verification team members and the nonconformities, if any. The verification protocol is an internal document, and is available on request. Following are the major milestones for the verification under consideration.

Verification contract	15/01/2018
Publication of MR	25/01/2018
On site verification	21/02/2018 & 22/02/2018
Draft Verification Report	16/03/2018
Final Verification Report	07/04/2018

Conclusion:

From the verification assessment, it is confirmed that the project activity has been implemented and operated as per the revised PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place. All the monitoring systems & procedures and monitoring report confirms the requirements of the approved monitoring plan and the approved monitoring methodology. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 33,254 tCO₂e emission reductions during period 01/01/2016 – 31/12/2017.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader/ Verifier/ Technical Expert (TA 1.2)	IR	Kandari	Sanjay	Central Office	x	x	x	x
2	Local Expert	EI	Poddwala	Pathmanatha	Central Office	x	x	x	

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer, Technical Expert (TA 1.2)	IR	Badaya	Rohit	Central Office
	Manager Technical & Certification	IR	Sharma	Chetan Swaroop	Central Office
2	Authorizer	IR	Goyal	Kaushal	Central Office

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Error in Data Transfer from JMR (which includes energy meter reading) to ER Spread sheet. The measurements are conducted with the aid of calibrated equipment's and errors could result from human errors during the information transfer from the source to emission reduction sheet.	High	Possible human error during transfer of data to ER spreadsheets and MR	Verification Team checked all the invoices and compared with ER spread sheet to check for any material error during data transfer.

C.2. Consideration of materiality in conducting the verification

The prescribed thresholds for materiality, as per §329 of VVS V01 for CDM project activities.

Prescribed range of ERs/annum	500,000+	300,000+ to 500,000	300,000	SSC PAs	MSC PAs
Prescribed Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The identified/selected materiality threshold for the project activity under current monitoring period is 5% as project activity is small scale project activity.

	MR Version (Draft)	MR Version (Final)
Emission reductions/annum	33,313 t CO ₂ e	33,254 t CO ₂ e
Identified Threshold	5%	5%

The impact of errors observed during verification for each monitoring parameter on the emission reduction calculation is provided below:

Parameter	Verification approach	Error identified	Corrected	Extrapolated error for population size (Qty and %)	Within Threshold
EG _y	Complete data check	No error identified	NA	NA	Yes
EG _{imp,y}	Complete data check	No error identified	NA	NA	Yes
EG _{exp,y}	Complete data check	No error identified	NA	NA	Yes

SECTION D. Means of verification

D.1. Desk/document review

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;

- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'Appendix 3' of this report.

D.2. On-site inspection

Duration of on-site inspection: 21/02/2018 & 22/02/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Implementation and Operation of the CDM project activity based on registered Monitoring Plan and physical features of the project activity as per registered PDD	Mampuri village, Puttalam District, North Western Province, Sri Lanka	21/02/2018 & 22/02/2018	Sanjay Kandari, Pathmanatha Poddiwala
2.	Information flows for generating, aggregating and reporting the monitoring parameters			
3.	Competency of the operating personnel, monitoring personnel and calibrating agencies			
4.	Data collection procedures			
5.	Calibration performance and monitoring practices followed for monitoring equipment's used in the project activity			
6.	Quality Control and Quality Assurance procedures against the approved monitoring plan			
7.	Calculation and assumptions made in determining the GHG data and emission reductions			
8.	Compliance with CDM criterion and relevant guidance with respect to monitoring plan			
9.	Level of accuracy (Materiality) of the monitoring activity			

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Moraes	Rozanne	General Manager, SWPL	22/02/2018	<ul style="list-style-type: none"> - General aspects of the project - Changes since validation / previous verification - Remaining issues from validation/ previous verification - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data analysis - Issues in the MR - ER calculation 	Sanjay Kandari; Pathmanatha Poddwala
2	Manesha	Tharushi	Trainee Engineer	21/02/2018 & 22/02/2018		
3	K	Chandra Kanth	Plant supervisor	21/02/2018		
4	R	Jasinathan	Senior Plant Superintendent	21/02/2018		

D.4. Sampling approach

>>

No parameter is monitored through sampling approach.

D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	-	-
Compliance of the project implementation with the registered PDD		1	-
Post-registration changes	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	1	-
Assessment of data and calculation of emission reductions or net removals	-	-	-

Project proponents	-	-	-
Total	0	2	-

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Verification team checked the monitoring report with latest version of MR available in the UNFCCC website (ie, version 6.0)/9/ and "Instructions for filling out the monitoring report form" mentioned as attachment to Monitoring report form (version 6.0).
Findings	CAR#01 was raised and closed satisfactorily.
Conclusion	Verification team confirms that final monitoring report is completed using the latest valid version of the applicable monitoring report form/9/.

E.2. Remaining forward action requests from validation and/or previous verification

>>

Verification team checked validation report/4/ and previous verification report (From 1st periodic verification)/5/. The FAR raised during validation was closed in the first verification. No FAR is raised during the first verification.

E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	<p>The project activity comprises 8 WTGs of 1.25 MW each of Suzlon S-64 make aggregating to a capacity of 10 MW. All the WTGs of the project activity got commissioned on 14/05/2010 and the dates of commissioning were verified from the commissioning certificate provided by CEB/13/. The WTGs have been in operation during the current monitoring period in compliance with the description provided in the registered PDD/3/.</p> <p>The entire project WTGs contain a unique location identification number as mentioned in Section A.2 of the MR/1/, verified from the respective Project handing over checklist. The location numbers are associated with the geo-coordinates of the individual WTG. The information related to commissioning of WTGs were checked against the respective commissioning certificates/13/ issued by Ceylon Electricity Board (CEB) and found in order. The WTG rated capacity, location/identification number, make, meter serial number and make etc. were verified from the name plates and technical specification/14/ and found to be consistent. The electricity generated from the project is fed into the regional grid/15/. The electricity produced is measured by the main meter owned by CEB located in the metering yard at the project site.</p>
Findings	Nil
Conclusion	<p>The implementation and operation of the project activity has been assessed against the registered & revised PDD.</p> <ul style="list-style-type: none"> a) The project activity consist of 8 Wind Turbine Generators of 1.25 MW commissioned on 06/05/2010 in Mampuri verified from the commissioning certificate/13/ and during the on-site assessment. b) The implementation is in line with the registered PDD c) There is no deviation or changes from the description in the registered PDD in the current monitoring period.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodologies or standardized baseline

No temporary deviation from registered monitoring plan or monitoring methodology is sought.

E.4.2. Corrections

No correction in the PDD is sought since registration of the project activity.

E.4.3. Changes to the start date of the crediting period of the project activity

No change in start date of crediting period is sought.

E.4.4. Inclusion of a monitoring plan to a registered project activity

Not applicable as the PP provided the monitoring plan in registered PDD itself.

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other applied standards or tools

There was a change in project monitoring plan from the registered PDD, which is already approved by CDM EB during previous verification. Hence, PRC for change in project monitoring plan is sought. The project webpage was verified for confirming the PRC approval. Approval granted by CDM EB on 9th December 2016 vide ref no PRC -REF 9074-001¹.

E.4.6. Changes to the project design of a registered project activity

>>

No change in project design of the registered project activity is sought.

E.4.7. Types of changes specific to afforestation and reforestation project activities

>>

Not applicable

E.5. Compliance of the registered monitoring plan with the methodology including applicable tools and standardized baselines

Means of verification	The monitoring parameters included in the monitoring report/1/ allow determination of proper emission reduction in the context of the project activity. This was verified through the monitoring plan in monitoring and the same was found to be in accordance with the referred applied methodology AMS 1D, Version 17/6/.
Findings	No finding
Conclusion	The monitoring plan mentioned in the MR is in line with the applied methodology AMS I.D, Version 17/6/. The monitoring mechanism is in line with the methodology and is effective and reliable.

E.6. Compliance of monitoring activities with the registered monitoring plan**E.6.1. Data and parameters fixed ex ante or at renewal of crediting period**

Means of verification	The verification team has checked the ex-ante parameters and data stated in Section D.1 of MR and compared with section B.6.2 of the revised approved PDD whether all parameters fixed ex-ante for the crediting period have been applied correctly.		
	Ex-ante Parameter	Value	Consistent with the PDD/3/& the source mentioned in it
	EF _{grid,CM,y}	0.6791 tCO ₂ /MWh	Yes
	EF _{grid,OM,y}	0.6921tCO ₂ /MWh	Yes

¹ <https://cdm.unfccc.int/PRCContainer/DB/prcp126457390/view>

	E EF grid,BM,y	0.6405tCO ₂ /MWh	Yes
Findings	Nil		
Conclusion	The values of ex ante fixed parameters have been verified from the registered PDD/3/. Same has been crosschecked with the source mentioned in the PDD and found to be consistent. The verification team confirms that the values used/applied are correct and justified. Also, the ex-ante values have been correctly applied in the calculation of emission reductions.		

E.6.2. Data and parameters monitored

Means of verification	<p>The verification team has determined whether the registered monitoring plan has been properly implemented and followed by the PP that the monitoring has been carried out in accordance with the registered monitoring plan; and determined whether all parameters including project emission parameters, baseline emission parameters and leakage parameters used for emission reduction calculation stated in the registered monitoring plan are monitored or used appropriately as per the registered PDD.</p> <p>During the verification all monitoring parameters listed in Section D.2 of MR/1/ were compared with section B.7.1 of the registered PDD have been verified with regard to the:</p> <ul style="list-style-type: none"> (i) appropriateness of the applied measurement / determination method, (ii) the correctness of the values applied for ER calculation, (iii) the accuracy, and applied QA/QC measures. <p>The monitored values are assessed as follows:</p> <p>EG_y- Quantity of net electricity supplied to the grid in a year is calculated as difference between EG_{exp,y}(Gross Energy Sales to Ceylon Electricity Board) the EG_{imp,y} (Energy purchased from CEB). The monitoring procedure of EG_{exp,y} and EG_{imp,y} are given below. The calculation is verified from the emission reduction calculation sheet and found that the total value considered (i.e, 489,67,589 kWh) is correct.</p> <p>EG_{imp,y}- Energy purchased from CEB is calculated from the below values:</p> <ul style="list-style-type: none"> (1) Import register of the energy meter installed at the Point of Supply (POS) (M2) to the national grid and (2) Energy meter installed at the point of purchase of electricity from a local distribution line (M3). <p>The both above readings are provided in the monthly electricity bills provide by the CEB to the PP. Verification team checked the electricity bills/invoices for all the months covering the monitoring period and confirmed that the values provided in the ER calculation sheet is correct. It was verified that the energy meter (M1/M2) is not calibrated on annual basis and calibration and reported in section E.7 of verification report. The error in the meter was within the permissible limit of 1% during delayed calibration. Hence, PP added the maximum possible error of 1% to the reading of the months from Sept 2016, Sept 2017 & Oct 2017, which is found to be in line with the requirement of project standard. Hence, the verification team accept the value considered for the ER calculation (i.e, 59,674 kWh after applying calibration delay).</p> <p>EG_{exp,y}- Gross Energy Sales to Ceylon Electricity Board is measured from the Energy meter M1 (which also house energy meter M2) installed at the point of supply (POS). The electricity generated is measured continuously and recorded monthly in the Export register and the electricity sale invoices. The invoices contains the gross energy generation details which is signed by both PP and area electrical engineer of CEB. Verification team checked export register and all the monthly invoices and found that the value provided in the ER calculation sheet is correct. It was verified that the energy meter (M1/M2) is not calibrated on annual basis and reported in section E.7 of verification report. The error in the meter was within the permissible limit of 1% during delayed calibration. Hence 1% deduction in</p>
------------------------------	---

	the export for the months of Sept 2016, Sept 2017 & Oct 2017 applied by PP and demonstrated in ER spreadsheet, which is found to be in line with the requirement of project standard. Hence, the verification team accepts the total value considered for the ER calculation (i.e, 490,27,263 kWh after considering error due to delay calibration).
Findings	CAR#02 was raised and closed successfully
Conclusion	Verification team confirm that the monitoring has been carried out in accordance with the approved PDD/3/. The monitoring system is in compliance with the information flow for the parameters as mentioned in monitoring plan in revised approved PDD. The monitored data for the parameters has been verified by checking the procedure for information flow and found to be complete and consistent.

E.6.3. Implementation of sampling plan

Means of verification	No parameter is determined by sampling procedure. Hence Not applicable
Findings	NA
Conclusion	NA

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the PP at a frequency specified in the revised monitoring plan approved by CDM EB. The calibration records were verified to check the frequency of calibration of the measuring instruments.			
	The calibration details of the monitoring equipment are verified as below:			
	Measuring Equipment & Sr. Number	Calibration dates/18/	Calibration validity/3/	Validity of calibration during the monitoring period.
	Energy meter M1 208307615	04/09/2015	03/09/2016	Yes
		15/09/2016	14/09/2017	
		25/10/2017	24/10/2018	
	Energy meter M2 208307615	04/09/2015	03/09/2016	Yes
		15/09/2016	14/09/2017	
		25/10/2017	24/10/2018	
	(M1 and M2 is same meter capable of bidirectional measurements)			
PP has considered maximum permissible errors in calculation of ERs in the month of Sept 2016, Sept 2017 & Oct 2017 as the energy meters were calibrated delayed. The actual error in the delayed calibration was less than maximum permissible error. Therefore maximum permissible errors has been considered for ER calculations and demonstrated in ER spreadsheet by PP.				
Findings	CAR-02 is raised and closed successfully			
Conclusion	Verification team has confirms that periodic calibration was carried out for all the required monitoring equipment's that have an impact on the claimed emission reductions. The frequency of calibration is annual except for energy meters (which will be calibrated once in 1 year as per calibration validity mentioned in the calibration certificate/18/) and applied methodology/6/. The calibration delay was found in the M1/M2 where the maximum possible error correctly applied which is in line with the Appendix of the VVS, version 01 for CDM project activities.			

E.8. Assessment of data and calculation of emission reductions or net removals**E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks**

Means of verification	<p>The verification team has checked whether calculations of baseline GHG emissions calculation have been carried out in accordance with the formulae and methods described in the registered monitoring plan.</p> <p>In detail the following has been verified:</p> <p><u>Transparency:</u> It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.</p> <p><u>Parameter consistency:</u> It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.</p> <p><u>Correctness:</u> It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.</p> <p><u>Completeness:</u> It has been checked whether all calculations are complete and without omissions</p> <p>The baseline emissions is calculated using the below formula:</p> $BE_y = EG_y * EF_{grid,CM,y}$ <p>where</p> <p>BE_y = Baseline Emissions in tCO₂e</p> <p>EG_y = Quantity of net electricity supplied to the grid</p> <p>$EF_{grid,CM,y}$ = Combined Margin Emission factor</p> <p>PP has submitted the calculation in the excel sheet/2/. The baseline calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the approved PDD/3/ and the selected methodologies/6/.</p>
Findings	Nil
Conclusion	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> • The calculations of baseline GHG emissions have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology. • The emission factor applied is an ex-ante value valid for the fixed crediting period. • Any assumptions used in emission or removal calculations have been justified. • Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the baseline calculation is overall correct. • The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible. • Hence, the baseline emission reported in the monitoring report for the monitoring period (i.e, BE_y = 33,254 tCO₂e) is verified to be correct

E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	As mentioned in the PDD, the project emission is zero as the wind power project does not involve in emission of any GHG gases.
Findings	No findings
Conclusion	The project emission is zero ie, PE _y = 0

E.8.3. Calculation of leakage GHG emissions

Means of verification	<p>During the verification it has been checked whether leakage emissions have to be considered and in cases where leakage emissions have to be calculated, the respective calculation of leakage GHG emissions has been checked.</p> <p>As per PDD, no leakage emission is considered in the project.</p>
------------------------------	---

Findings	No findings
Conclusion	Leakage emission is zero ie, $L_y = 0$

E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	<p>Section E.4 of MR demonstrate the summary of GHG emission reductions for the monitoring period and calculated according to the applied methodologies as follows:</p> $ER_y = BE_y - PE_y - L_y$ $= 33,254 - 0 - 0 = 33,254 \text{ tCO}_2\text{e}$ <p>The ER calculation sheet and monitoring report is verified to check the calculation.</p>
Findings	CAR-02 is raised and closed successfully
Conclusion	<p>The verification team confirms the following:</p> <ul style="list-style-type: none"> • The emission reduction value reported (ie, 33,254 tCO₂e) is verified to be correct. • The summary table in the MR has been filled correctly and the values are in line with the related emissions reduction spreadsheet. • Since the monitoring period starts after 31/12/2012, the complete emission reductions are correctly reported under the respective column in the MR.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The verification team has checked whether the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD/3/. Section E.5 of the MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the revised approved PDD	
	Emission reduction estimated as per the registered PDD/3/	Actual emission reduction achieved as per Monitoring report/1/
	37,536 t CO ₂ e	33,254 t CO ₂ e
	Hence, the actual emission reduction achieved during the monitoring period is less than the estimation in the PDD.	
Findings	No finding	
Conclusion	The estimated emission reduction as per registered PDD and the actual emission reduction achieved for the monitoring period are correctly reported in the section E.5 of MR. The actual achieved emission reduction is less than the PDD estimation. Hence no justification is required.	

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase if any.
Findings	No finding
Conclusion	The actual achieved emission reduction is less than the PDD estimation. Hence no justification is required.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The verification team has determined the CER achieved during first commitment period and second commitment period
Findings	No finding
Conclusion	Since the complete monitoring period falls after the second commitment period, the complete emission reductions (33,254 CO ₂ e) are correctly reported under the respective column in the MR.

E.9. Assessment of reported sustainable development co-benefits

Means of verification	Not reported by PP.
Findings	Refer above
Conclusion	Refer above

E.10. Global stakeholder consultation

Means of verification	Not applicable for this verification.
Findings	Refer above
Conclusion	Refer above

SECTION F. Internal quality control

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Manager Technical and Certification. The technical reviewer and Manager (Technical & Certification) can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager (Technical & Certification).

SECTION G. Verification opinion

The verification team confirms that the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters have been cross checked with the emission reduction sheet and monitoring report. During the course of verification and on site visit, the data submitted by PP was cross verified with the values mentioned in the emission reduction sheet/2/ and monitoring report/1/. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the revised PDD approved during 2nd verification..

Evidences (Documents/interview/site visit) referred for verification of individual monitoring parameter and fixed parameters are defined in section E.6 above. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 33,254 tCO₂e emission reductions during period 01/01/2016 – 31/12/2017.

SECTION H. Certification statement

KBS Certification Services Pvt. Ltd. has been contracted by 'Senok Wind Power (Private) Limited' to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the CDM Project activity "Mampuri Wind Power Project" and UNFCCC Reference Number 9074 for the monitoring period 01/01/2016 – 31/12/2017 (including both dates) in the Monitoring Report Version 01 (first version) dated 24/01/2018.

The verification is based on the approved revised PDD and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board.

The management of the 'Senok Wind Power (Private) Limited' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report Version 03 dated 05/04/2018. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'Senok Wind Power (Private) Limited'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 03 dated 05/04/2018.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the monitoring period 01/01/2016 – 31/12/2017 (including both dates) based on the reported emission reductions in the Final Monitoring Report Version 03 dated 05/04/2018 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following;

Reporting period: 01/01/2016 – 31/12/2017 (including both dates)

Verified and certified emission in the above reporting period:

	Amount	Unit
Baseline emissions (BE)	33,254	tCO ₂ e
Project emissions (PE)	0	tCO ₂ e
Leakage emissions (LE)	0	tCO ₂ e
Certified emission reductions (CERs)	33,254	tCO ₂ e

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CEB	Ceylon Electricity Board
CERs	Certified Emission Reductions
CH ₄	Methane
CL	Clarification Request
CO ₂ e	Carbon dioxide equivalent
COP	Conference of Parties
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ERPA	Emission Reduction Purchase Agreement
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
GWP	Global Warming Potential
ISO	International Organization of Standardization
JMR	Joint Meter Readings
IPCC	Intergovernmental Panel on Climate Change
KBS	KBS Certification Services Pvt. Ltd.
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
NGO	Non-Governmental Organisation
OP	Operating Procedure
PE	Project Emissions
PDD	Project Design Document
PS	Project Standard
PCP	Project Cycle Procedure
SPPA	Small Power Purchase Agreement
SWPL	Senok Wind Power (Private) Limited
QA/QC	Quality Assurance/Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard
WTG	Wind Turbine Generator

Appendix 2. Competence of team members and technical reviewers

Personnel Name:	Pathmanatha Poddiwala
Qualified to work as:	

CDM-VCR-FORM

Team Leader	<input type="checkbox"/>	Technical Expert	<input type="checkbox"/>
Validator/Verifier	<input type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input type="checkbox"/>	Local Expert (Srilanka)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
N/A	N/A		
Approved by (Manager C & T)	Mayank Kumar Jain		
Approval date:	26/06/2012		

Personnel Name:	Chetan Swaroop Sharma		
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	09/10/2015		

Personnel Name:	Sanjay Kandari		
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Akhilesh Joshi		
Approval date:	11/12/2015		

Personnel Name:		Rohit Badaya	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Solid waste and wastewater TA 13.2 Manure		
Approved By	Manager Competency & Training		
Approval date:	16/10/2017		

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	SWPL	Monitoring Report,	Version 01, dated 24/01/2018	SWPL
	SWPL	Monitoring Report	Version 02, dated 13/03/2018	SWPL
	SWPL	Monitoring Report	03 dated 05/04/2018	SWPL
2	SWPL	ER Calculation Sheet	Version 01, dated 24/01/2018	SWPL
	SWPL	ER Calculation Sheet	Version 02, dated 13/03/2018	SWPL
3	SWPL	Revised approved PDD	Version 12, dated 03/09/2016	Publically available
4	SGS	Validation Report	Dated 18/12/2012	Publically available
5	KBS	Verification report of 1 st and 2 nd Monitoring period	Dated 03/11/2014 Dated 28/09/2016	Publically available
6	UNFCCC	AMS-I.D - Grid connected renewable electricity generation	Version 17	Publically available
7	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas	Web link	Publically available

		Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book		
8	UNFCCC	Kyoto Protocol (1997)	Web link	Publically available
9	UNFCCC	Monitoring Report Form (CDM-MRFORM), Version 6.0	Version 6.0	Publically available
10	UNFCCC	CDM Project Standard for project activities	Version 1.0	Publically available
11	UNFCCC	CDM Validation and Verification Standard for project activities	Version 01	Publically available
12	UNFCCC	Glossary "CDM terms"	Version 09.1	Publically available
13	CEB	Commissioning Certificate	Commissioning date 14/05/2010	SWPL
14	Suzlon	Technical Specification of WTG	-	SWPL
15	CEB & SWPL	Small Power Purchase Agreement (SPPA) signed between SWPL and CEB		SWPL
16	SWPL & CEB	Invoices for the electricity sale to CEB	-	SWPL
	SWPL	Export register	-	SWPL
17	CEB	Monthly electricity bill	-	SWPL
	SWPL	Electricity import register	-	SWPL
18	CEB	Calibration Certificates of energy meters	-	SWPL

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

NA

FAR ID	xx	Section no.	E.2	Date: DD/MM/YYYY
Description of FAR				
NA				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 2. CL from this verification

NA

CL ID		Section no.		Date:
Description of CL				
Project participant response				Date:
Documentation provided by project participant				

Revised MR	
DOE assessment	Date:

Table 3. CAR from this verification

CAR ID	01	Section no.	B.2.5	Date: 27/02/2017
Description of CAR				
Section B.2.5. of published monitoring report doesn't include the information regarding post registration changes approved during previous issuance. Refer MR filling guidance.				
Project participant response				Date: 14/03/2018
The monitoring report version 2 dated 13/03/2018 has been corrected and the requirements have met.				
Documentation provided by project participant				
Revised monitoring report version 2				
DOE assessment				Date: 17/03/2018
The revised monitoring report has been corrected by PP and information regarding PRC is incorporated. CAR is closed.				

CAR ID	02	Section no.	E.7	Date: 27/02/2017
Description of CAR				
MR-Section D.2: Calibration dates provided in the published monitoring report doesn't cover the entire monitoring period moreover the calibration certificates verified during on site audit doesn't fulfil the annual calibration frequency as specified in revised PDD.				
Project participant response				Date: 14/03/2018
The calibration dates have been incorporated for the calculation in the monitoring report version 2 dated on 13/03/2018. The correction has been applied.				
Documentation provided by project participant				
Revise the monitoring report version 2				
DOE assessment				Date: 17/03/2018
PP has updated the calibration details covering entire monitoring period. PP has also considered errors in the ER calculation for the periods wherein the meters were not calibrated annually. The control of meters is in hands of electricity board therefore the consideration of error is in line with Appendix of CDM PS, version 01 for project activities. Details of calibration are reported in main section of verification report. CAR is closed.				

Table 4. FAR from this verification

FAR ID	xx	Section No.	Date: DD/MM/YYYY
Description of FAR			
NA			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

Document information

Version	Date	Description
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Issuance		
Keywords: project activities, verifying and certifying		