
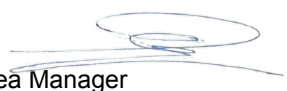
 <p style="text-align: center;">Verification and certification report form for CDM project activities (Version 01.0)</p>	
<p><i>Complete this form in accordance with the "Attachment: Instructions for filling out the verification and certification report form for CDM project activities" at the end of this form.</i></p>	
VERIFICATION AND CERTIFICATION REPORT	
Title of the project activity	Wind Power Project in Maharashtra State, India
Reference number of the project activity	10164 ¹
Version number of the verification and certification report	01
Completion date of the verification and certification report	08/09/2017
Monitoring period number and duration of this monitoring period	Monitoring Period: 01 Monitoring Period Duration: 24/07/2015 to 01/03/2017 (both days included)
Version number of monitoring report to which this report applies	02
Crediting period of the project activity corresponding to this monitoring period	24/07/2015 – 23/07/2025 (Fixed)
Project participant(s)	Mahalaxmi Commercial Services Private Limited
Host Party	India
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope 1: Energy Industries (renewable - /non renewable sources) Methodology: - AMS.I.D Version 17 - Grid connected renewable electricity generation (Version 17)
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	28,347 tCO ₂ e
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	24,678 tCO ₂ e
Name of DOE	 LGAI Technological Center, S.A. (Applus)
Name, position and signature of the approver of the verification and certification report	Juan Sendín Caballero B.U. Systems Certification Area Manager 

¹ <https://cdm.unfccc.int/Projects/DB/SGS-UKL1435153630.26/view>

SECTION A. Executive summary

The Project Participant, Mahalaxmi Commercial Services Private Limited, has proposed to develop a 10.5 MW wind power project at site-Jath, Taluka-Jath, District-Sangli, State-Maharashtra in India. The project activity will generate electricity utilising wind energy and will supply the generated electricity to the regional MSEDCL grid which is under purview NEWNE grid. Export and import to/from the grid by project activity is measured on continuous basis with the 0.2s accuracy meters². Net electricity exported to the grid is thus calculated from the difference of export and import. In absence of the project activity equivalent amount of electricity would have otherwise been generated by existing and new power plants connected to the emission intensive NEWNE electricity grid. Thus the project activity would result in avoidance of Green House Gases (GHGs) emission and contribute to mitigation of global warming.

Details of commissioning date of all WTGs:

Sl. No	Location	Capacity of WTG (MW)	Commissioning Date*
1	JTH- 247	2.1	08/06/2013
2	JTH- 292	2.1	08/06/2013
3	JTH- 293	2.1	08/06/2013
4	JTH- 294	2.1	11/02/2014
5	JTH- 300	2.1	11/02/2014

* Reference foot note no. 2 is applicable.

The Project Participant has placed the purchase orders to Suzlon Energy Limited and its group companies to supply and install the proposed wind power project. Suzlon shall also provide operation and maintenance services to the project activity.

It is to be noted that, the project participant of the concerned project activity is Mahalaxmi Commercial Services Private Limited. However, the ownership has been now transferred to M/s Baidyanath Power Private Limited.

The Business Transfer Agreement between Mahalaxmi Commercial Services Private Limited and Baidyanath Power Private Limited was executed on 13th October 2015.

1. Verification Scope: The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification is based on the submitted monitoring report, the validated and registered PDDas well as its validation report and previous verification report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance. Based on the requirements in the VVS version 09.0, Applus+ LGAI has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion. The verification considers both quantitative and qualitative information on emission reductions. The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

2. Methodology:

Applus+ LGAI's approach to the verification is a two-stage process.

In the 1st stage, Applus+ LGAI completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;

²Commissioning certificates is provided for meter accuracy class and commissioning dates of WTGs.

- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ LGAI used a periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2nd stage using the Verification Checklist, Applus+ LGAI verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

Assessment team

According to the sectoral scopes / technical area and experiences in the sectoral or national business environment, Applus+ LGAI has composed a project assessment team in accordance with the appointment rules in Applus+ LGAI complying with EB's requirements. The composition of assessment team has to be approved by the Applus+ LGAI ensuring that the required skills are covered by the team. The four qualification levels for team members that are assigned by formal appointment rules as below:

Leader Auditor (LA)
Auditor (A)
Auditor Trainee (T)
Technical Experts (E)

The detail is mentioned below in section B of this report. The CV of personal are incorporated in Appendix 2 of this report.

3. Review of Documentation:

The Monitoring Report version 01 submitted by the PP was made publicly available on the UNFCCC website before the verification activities started. The published MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid;
- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of documents reviewed is available in Appendix 3 of this report.

4. On-site Assessment and follow-up Interviews:

As a part of the verification, the on-site inspection has been performed by the assessment team.

The objective of the on-site assessment is to:

- confirm the implementation and operation of the project;
- review the data flow for generating, aggregating and reporting the monitoring parameters;
- confirm the correct implementation of procedures for operations and data collection;
- cross-check the information provided in the MR documentation with other sources;
- check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.;
- review the calculations and assumptions used to obtain the GHG data and ER;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

The details are mentioned in section D.2 of this report.

5. Quality of Evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR. The source of the evidences will be discussed in Appendix 3 of this report. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

6. Reporting of Findings

As an outcome of the verification process, the assessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period. All the CARs/CLs are being discussed in Appendix 4 of this report

7. Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the request of issuance is submitted to CDM EB along with the requisite documents.

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	OR	DAS	SUKANTA	True Quality Certifications	Yes	Yes	Yes	Yes

					private Limited- Outsourced entity				
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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	IR	Xue	Denny	Applus+LGAi
2.	Approver	IR	Sendin Caballero	Juan	Applus+LGAi

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	Human errors: Readings from Meters (if not automatic)	LOW	Human error is likely to occur if the monitoring personnel are not trained well or inexperienced in data recording procedures and monitoring processes.	All the personal are well trained to monitor and collect data and thus risk associated with Human error is minimized. Assessment team checked the training records to confirm that all the personal are well trained to handle the activities related to monitoring. Assessment team checked the training records and confirm that the personal are well trained to monitor and collect data for the project activity.
2	Human error: Quantification of emission reduction	LOW	Use of spreadsheets without adequate data control, changes/updates, version tracking, traceability and security	All the JMR sheets and the invoices for the complete monitoring period are checked and thus the assessment team confirms that the ER value is conservative and correct.

C.2. Consideration of materiality in conducting the verification

In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. It invoices follows the paper trail back to the raw data such as meter reading records. There are no material errors, omission or misstatement.

SECTION D. Means of verification**D.1. Desk review**

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment used including calibration requirements, and the QA/QC procedures, and an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reduction.

The initial MR Version 1.0 submitted by the project participant and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step involved the identification of corrective action requests and clarification requests (CAR and CR) which are

presented in Appendix 4 of this report. As a result of these findings, the MR is revised to MR Version 2. A complete list of all documents and record reviewed is as attached in Appendix 03 of this report.

D.2. On-site inspection

Duration of on-site inspection: 17/07/2017 to 20/07/2017				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p>The verification team conducted visits to the project site on 17/07/2017 to 20/07/2017 to confirm the information and to resolve issues identified in the document review. An on-site assessment was conducted as a part of verification activity and involved:</p> <p>1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD</p> <p>2) a review of information flows for generating, aggregating and reporting of the monitoring parameters</p> <p>3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan</p> <p>4) a cross-check between information provided in the MR and data from other sources</p> <p>5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology</p> <p>6) a review of calculations and assumptions made in determining the GHG data and ERs, and</p> <p>7) an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters</p>	<p>The project activity is located at Jath site, District-Sangli, State-Maharashtra.</p> <p>The complete details of the site is as below:</p> <p>District-Sangli Taluka-Jath Villages-Mendhegiri, Muchandi</p>	17/07/2017 to 20/07/2017	Mr. Sukanta Das

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Damblekar	Ashok	Site In charge	17/07/2017 to 20/07/2017	As described above in section D.2 of this report	Mr. Sukanta Das

D.4. Sampling approach

No sampling is used as the verification team has visited solar site along with the substations. The verification team has reviewed all the documents like commissioning certificates, JMR reports, invoices etc.

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	0	0	0
Compliance of the project implementation with the registered PDD	0	0	0
Post-registration changes	0	0	0
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	0	0	0
Compliance of monitoring activities with the registered monitoring plan	0	0	0
Compliance with the calibration frequency requirements for measuring instruments	0	1	0
Assessment of data and calculation of emission reductions or net removals	0	2	0
Others: 1. Matter related to power plant break down.	0	1	0
Total	0	4	0

SECTION E. Verification findings**E.1. Compliance of the monitoring report with the monitoring report form**

Means of verification	The verification team has determined whether the monitoring report was completed using the valid version of the applicable monitoring report form. The verification team has checked whether all the sections of the monitoring report follows the guidelines provided in the template.
Findings	No finding raised regarding this compliance
Conclusion	PP has used the version 5.1 of the MR form which is the current and active version. The monitoring report has been prepared as per the instructions provided in the template. DOE has made the version 1.0 of the monitoring report covering the monitoring period from 24/07/2015 to 01/03/2017 publicly available through its dedicated interface on the UNFCCC CDM website before undertaking the site visit for the verification from 17/07/2017 to 20/07/2017. The verification team has concluded that the monitoring report was completed using the valid version of the applicable monitoring report form and is followed the guidelines contained in the template.

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

This is 1st periodic Verification. No FAR was raised during the validation of the project activity.

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

Means of verification	The verification team determined the conformity of the actual implemented project activity and its operation with the registered project design document. DOE has, by means of a desk review and an on-site visit, assessed whether all physical features of the proposed CDM project activity proposed in the registered PDD are in place, and that the project participants have operated the CDM project activity as per the registered PDD
Findings	No findings raised
Conclusion	<p>The verification team has reviewed the commissioning certificates to conclude that the capacity of the project is same as mentioned in the registered PDD. The capacity does not change after the registration of the project activity.</p> <p>The capacity of the project is less than 15 MW and thus the project is a small scale project activity and the same is confirmed by the DOE during the onsite visit.</p> <p>Based on the documentary evidence of commissioning certificates and physical</p>

verification DOE concludes that the project was implemented as per the registered PDD.

Moreover, assessment team also checked the technical specification of the project activity and confirm that the project is installed as per the specification mentioned in the registered PDD. The details are as below:

Operating Data	
Rated Power	2.1 MW
Cut-in wind speed	4 m/s
Rated wind speed	14 m/s
Cut-out wind speed	25 m/s
Hub Height	79 m
Wind Class	IEC-IIA
Rotational speed	15 to 17.6 rpm
Rotor	
Pitch system	Pitch regulated, electrical
Diameter	88 m
Swept Area	6,082 m ²
Blade material type	Epoxy bundled fibre glass
Generator	
Type	Asynchronous slip ring type induction generator
Rated Power	2,100 kW
Rated Voltage	690 / 600 V
Frequency	50/60 Hz
Protection	IP 54, IP 23 for slip ring unit
Cooling system	Air cooled
Insulation	Class H
Slip control	Unique Flexi-Slip providing slip up to 16.67%
Braking System	
Aerodynamic brake	3 Independent systems with blade pitching mechanism
Mechanical brake	Hydraulic fail-safe disc brake system
Gear box	
Type	3 stage (1 planetary and 2 helical)
Ratio	1:98.8/1:118.1
Nominal load	2,200 kW
Yaw system	
Type	Driven by 3 electrical driven planetary drives
Bearings	Polyamide slide
Certifications	
Design standards	GL 2003
Quality	ISO 9001:2000, ISO 9001:2008, ISO 14001:2004 & OHSAS 18001:2007
Tower	
Type	Tubular Tower (4 sections)
Corrosion Protection	Epoxy/PU coated

Moreover, assessment team checked the latitude and longitude via GPS meter and confirms that the detail as mentioned in the registered PDD is correct.

E.4. Post-registration changes**E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline**

There are no temporary deviations observed for this monitoring period.

E.4.2. Corrections

For the current monitoring period, the Project Participant has applied for Post-Registration changes. The details of the Post-Registration Changes have been mentioned in the table below:

Sl. No	Parameters as per Old PDD	Parameters as per New PDD	Reason for change
1	Project Participant and Ownership- Mahalaxmi Commercial Services Private Limited	Project Participant- Mahalaxmi Commercial Services Private Limited, but the ownership has been transferred to M/s Baidyanath Power Private Limited	The Business Transfer Agreement between Mahalaxmi Commercial Services Private Limited and Baidyanath Power Private Limited was executed on 13th October 2015.

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

There is no change in start date of crediting period. The crediting period date is 24/07/2015 - 23/07/2025 (Fixed).

<https://cdm.unfccc.int/Projects/DB/SGS-UKL1435153630.26/view>

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

Not applicable for the project activity.

E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

For the current monitoring period, the Project Participant has applied for Post-Registration changes. The details of the Post-Registration Changes in registered monitoring plan has been mentioned in the table below:

Sl. No	Parameters as per Old PDD	Parameters as per New PDD	Reason for change
1	Calibration Frequency- once in a year	Calibration Frequency- once in five year	For the calibration of the meters, the state electricity board follows the Metering Regulations published by Central Electricity Authority, Govt of India in 2006 which mentions that calibration of the meters should be done once in a five year.

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

There is no change in project design from registration.

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

Not applicable for this project activity.

E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology AMS.I.D version 17 including applicable
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	tools.
Findings	No Finding was raised regarding Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline
Conclusion	The verification team was able to confirm that the monitoring plan contained in the registered PDD is in accordance with the approved methodology applied by the project activity, i.e. AMS.I.D version 17 and its applicable tools.

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 assessment team checked the registered PDD to confirm the ex-ante fixed parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-ante values used for emission reduction calculation.
Findings	No findings were raised regarding the same.
Conclusion	<p>$EF_{grid,OM,y}$, $EF_{grid,BM,y}$, $EF_{grid,CM,y}$ were mentioned as ex-ante fixed parameter. Assessment team checked the values, source of data, choice of data, purpose of the data mentioned in the MR from the registered PDD and confirms that the similar approach was considered for the current monitoring period also.</p> <p>The value for $EF_{grid,OM,y}$, $EF_{grid,BM,y}$, $EF_{grid,CM,y}$ were considered from registered PDD fixed ex-ante. The default value as mentioned in the registered PDD and MR are same. The default value in the registered PDD is sourced from Baseline Carbon Dioxide Emission Database Version 8.0" published by the Central Electricity Authority, Ministry of Power, Government of India. The value of combined margin in India is being given by CEA and thus assessment team conclude that the value is correct and appropriate. The default value in turn is used for baseline calculation as per the formula given in the registered PDD for the current monitoring period.</p>

E.6.2. Data and parameters monitored

Means of verification	The assessment team checked the registered PDD to confirm the ex-post parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-post parameter monitoring and confirms that the same is in line with the registered PDD. AMS.I.D version 09 which was the applied methodology during the registration of the project is also checked to ensure that monitoring parameter as mentioned in the registered PDD and current MR are in compliance with the methodology.
Findings	No findings were raised regarding this issue.
Conclusion	<p>As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored:</p> <ol style="list-style-type: none"> 1. $EG_{export,y}$: Electricity exported to the grid by the project activity in year y (MWh) <p>The parameter is measured from the meters installed on the HT side of the transformer. The main meter installed at the metering point is dedicated meter for Project Participant 5 WTGs together will measure the export of electricity on continuous basis. Accuracy of the meters is 0.2. The accuracy class of active energy measurement is in accordance to Indian national Standards. The meter is of Elster make which is confirmed by the assessment team during the verification site visit. Main meter reading will be taken and verified, once in a month, jointly by the representatives of MSEDCL and the authorized representative of the contractor (Suzlon Energy Limited). Joint Meter Reading Report (JMR) is developed by MSEDCL. The value of the parameter is sourced from JMR contains data on export, import and net electricity supplied.</p> <ol style="list-style-type: none"> 2. $EG_{import,y}$: Electricity imported from the grid by the project activity in year y (MWh) <p>The parameter is measured from the meters installed on the HT side of the transformer. The main meter installed at the metering point is dedicated meter for</p>

	<p>Project Participant 5 WTGs together will measure the export of electricity on continuous basis. Accuracy of the meters is 0.2. The accuracy class of active energy measurement is in accordance to Indian national Standards. The meter is of Elster make which is confirmed by the assessment team during the verification site visit. Main meter reading will be taken and verified, once in a month, jointly by the representatives of MSEDCL and the authorized representative of the contractor (Suzlon Energy Limited). Joint Meter Reading Report (JMR) is developed by MSEDCL. The value of the parameter is sourced from JMR contains data on export, import and net electricity supplied</p> <p>3. $EG_{BL, y}$: Net electricity supplied to the grid by the project activity in year y for the monitoring period 24/07/2015 to 01/03/2017(both days included)</p> <p>The parameter is a calculated using the difference of export and import value measured from the electricity meter. The source of data of the parameter is Measured by the meter and as noted in the monthly bill provided by the agency. Electricity export and import is measured via Bi-directional electricity meter installed on the high tension side of the transformer and the value of export and import forms the part of Meter reading statement issued by State electricity board. The meter reading is taken during a fixed billing cycle of every month and representative of state electricity board and Operation and maintenance personal onsite present during the process. Assessment team checked all the values of the electricity exported and electricity imported from the Meter reading statement issued by State electricity board. The meters are calibrated in line with Indian regulations for such installations. Accuracy of the meters is 0.2. The accuracy class of active energy measurement is in accordance to Indian national Standards. The meter is of Elster make which is confirmed by the assessment team during the verification site visit. The net electricity exported to the grid is then calculated from the difference of export and import value. The value of $EG_{BL, y}$ is then cross checked from the invoices raised to state electricity board by the project participant. The invoices also matched with $EG_{BL, y}$ calculated from export and import values which is in accordance with approved methodology and registered PDD.</p> <p>The electricity (export and import) is monitored through state-of-the-art sealed and tested meters. The net metered electricity generation (export and import used to calculate Net electricity exported to the grid) data is used to calculate and monitor the greenhouse gas emission reductions from the project.</p>
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E.6.3. Implementation of sampling plan

Means of verification	The verification assessed whether the compliance of the sampling efforts and surveys with the registered sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities" if PP had applied a sampling approach to determine data and parameters monitored.
Findings	There is no CAR/CL raised in this section.
Conclusion	PP did not apply sampling plan to determine data and parameters monitored during this monitoring period. The verification team has checked all the documents such as JMR report, invoice etc. and hence sampling plan was not required. The verification team hereby confirms that it checked all the documents

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 registered monitoring plan.
Findings	CAR 1 was raised during the verification process and closed successfully. Please refer Appendix 4 of this report for detail closure of the CAR.

Conclusion

The metering arrangement for the project activity is energy meters (main and check) at the substation. These meters record several parameters including electricity exported & imported. These electricity meters are being used by state officials to obtain the value of export and import and hence Net electricity supplied is calculated based on these values.

The calibration details are checked and found correct by the assessment team. The detail of calibration is presented below:

33/11 KV, Pachchhapur substation, Pachchhapur Feeder			
Connected WTGs: JTH292, JTH293, JTH294, JTH247, JTH300			
Details of Main Meter		Details of Check Meter	
Serial No	14953743	Serial No	14953564
Make	Elster	Make	Elster
Type	A 1800	Type	A 1800
Accuracy Class	0.2 s	Accuracy Class	0.2 s
Calibration frequency	Annual	Calibration frequency	Annual
Date of Calibration	Calibration Validity ³	Date of Calibration	Calibration Validity
17/07/2014	16/07/2019	17/07/2014	16/07/2019
Details of new feeder connectivity ⁴			
110/33 KV Jath Substation, Feeder-1			
Connected WTGs: JTH292, JTH293, JTH294, JTH247, JTH300			
Details of Main Meter		Details of Check Meter	
Serial No	13813605	Serial No	13813606
Make	Elster	Make	Elster
Type	A 1800	Type	A 1800
Accuracy Class	0.2 s	Accuracy Class	0.2 s
Calibration frequency	Annual	Calibration frequency	Annual
Date of Calibration	Calibration Validity ⁵	Date of Calibration	Calibration Validity
07/08/2015	06/08/2020	07/08/2015	06/08/2020
12/08/2016	11/08/2021	12/08/2016	11/08/2021

During the registration of the PDD, calibration frequency was considered annual. However assessment team during the site visit confirms that the annual frequency is not followed onsite and thus opted for post registration change. As per PRC (= Post registration change) change the calibration frequency is now modified as once in a five year which is as per the national guideline⁶ and onsite practice. Moreover, assessment team checked recent CEA(= Central Electricity Authority, Govt of India) guideline (national guideline) and confirms that there were no further amendment to the Gazette Notification of 17th March 2006 by Govt of India regarding calibration frequency. Thus the calibration frequency as mentioned in the revised PDD version 02 dated 29/08/2017 is acceptable to the assessment team. Moreover following corrections are done in Monitoring:

³ The calibration validity has been mentioned as per revised PDD which considered calibration frequency once in five years as per CEA notification.

⁴ There has been a shift of the feeder connectivity on 01/10/2015 and the new feeder connectivity details are now provided in the table.

⁵ Though state electricity board does calibration less than calibration interval of once in five years, the calibration validity has been mentioned as per revised PDD which considered calibration frequency once in five years as per CEA notification.

⁶ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

	SI. No	Detail as per Old PDD version 1.9 dated 25/04/2015	Detail as per New PDD version 02 dated 29/08/2017	Reason for change
	1	Calibration Frequency- once in a year	Calibration Frequency- once in five year	For the calibration of the meters, the state electricity board follows the Metering Regulations published by Central Electricity Authority, Government of India in 2006 which is once in a five year.
<p>The revision now forms the part of PRC (= Post registration change) change and thus acceptable to the DOE because PP is following national standard. Section B.7.1 of the revised PDD version 02 dated 29/08/2017 is now corrected with regard of calibration frequency and thus the same is also acceptable to the assessment team.</p> <p>Assessment team seek PRC change as per Para5 (a) - (Change of calibration frequency is not in the hand of PP) of Appendix 1 of PS version 09. Since, the post registration changes do not require prior Approval by the Board so, DOE assessment on PRC is combined with issuance request for 1st monitoring period of the project.</p>				

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	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	CAR 3, CAR 4 was raised during the verification process. The description of the CAR and its closure is described below in Appendix 4 of this report

Conclusion	<p>The Calculation of baseline emissions for the monitoring period is presented properly in the MR and the same is checked by the assessment team and found correct.</p> <p>Baseline emission is calculated below as per the formula given in registered PDD:</p> $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ <p>Where, $EG_{PJ,y} = 25,755\text{MWh}$ $EF_{grid,CM,y} = 0.9582\text{tCO}_2\text{e/MWh}$</p> <p>Hence, $BE_y = 25,755\text{MWh} \times 0.9582\text{tCO}_2\text{e/MWh} = 24,678\text{tCO}_2\text{e}$ $PE_y = 0$ (as explained under section E.2 of the MR version 02) $LE_y = 0$ (as explained under section E.3 of the MR version 02)</p> <p>Therefore, Emission reduction $ER_y = BE_y - PE_y - LE_y$ $= 24,678 - 0 - 0 \text{ tCO}_2\text{e}$ $= \mathbf{24,678 \text{ tCO}_2\text{e}}$</p> <p>As per registered PDD PE_y and LE_y is zero and thus Baseline emission= Emission reduction.</p> <p>Hence, $ER_y = \mathbf{24,678 \text{ tCO}_2\text{e}}$</p>
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E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	No findings raised
Conclusion	Project emission is zero as per the requirement of the methodology and registered PDD

E.8.3. Calculation of leakage GHG emissions

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	No findings were raised.
Conclusion	The leakage emissions are regarded as zero according to the applied methodology and registered PDD.

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

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	There is no CAR/CL raised in this section.
Conclusion	Emission reductions in this monitoring period are: Total Baseline Emissions: $24,678\text{tCO}_2\text{e}$ Total Project Emission: 0

	<p>Total Leakage: 0</p> <p>Total Emission Reduction: Emission reduction calculation is done based on following formula,</p> <p>Emission reduction (ER_y) = Baseline Emission (BE_y) – Project Emission (PE_y) – Leakage Emission (L_y)</p> <p>=24,678tCO₂e</p>
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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 determined the CER achieved during this monitoring period with the estimated value and reason for increase if any.
Findings	CAR 04 was raised during the verification process. Please refer Appendix 4 for the successful closure of the CAR
Conclusion	The actual CER is 12.94% lower than the estimated value which is due to the lower performance of the machines during the current monitoring period. Assessment team confirmed that there is no change in design of project activity as mentioned in the registered PDD.

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	CAR 04 was raised during the verification process. Please refer Appendix 4 for the successful closure of the CAR
Conclusion	The actual CER is 12.94% lower than the estimated value which is due to the lower performance of the machines during the current monitoring period. Assessment team confirmed that there is no change in design of project activity as mentioned in the registered PDD.

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	There is no CAR/CL raised in this section.
Conclusion	<ol style="list-style-type: none"> 1. GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012: 0 tCO₂e 2. GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards: 24,678tCO₂e

SECTION F. Internal quality control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the request of issuance is submitted to CDM EB along with the requisite documents

SECTION G. Verification opinion

Applus+ LGAI has been engaged by Mahalaxmi Commercial Services Private Limited to perform the 1st periodical verification of the "Wind Power Project in Maharashtra State, India"

The management of M/s Mahalaxmi Commercial Services 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's Monitoring Plan in the registered approved PDD version 1.9 completed on 25/04/2017, revised PDD version 02 dated 29/08/2017 and the applied methodology AMS.I.D version 17.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the project design document approved by the EB;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by the EB;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for "Wind Power Project in Maharashtra State, India" for the monitoring period 24/07/2015 to 01/03/2017 (both dates included) as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 24/07/2015 to 01/03/2017
(both days included)

Verified emissions in the above reporting period:

Leakage emissions	0 tCO ₂ equivalents
Project emissions	0 tCO ₂ equivalents
Baseline emissions	24,678tCO ₂ equivalents
Emission reductions	24,678tCO₂equivalents

SECTION H. Certification statement

Same as above

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CMS	Central Monitoring system
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions sheet
FAR	Forward Action Request
JMR	Joint Meter reading
GHG	Greenhouse gas(es)
GWP	Global Warming potential
RBI	Reserve Bank Of India
PP	Project Participant

PPA	Power purchase agreement
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Appendix 2. Competence of team members and technical reviewers

1. Mr. Sukanta DAS, has done M. SC in (Electronics and Photonics) and M. Tech in (Energy technology) from Tezpur Central University/ Indian Institute of technology Bombay in India. He is a certified lead auditor for ISO 14001 EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than eight years of working experience at TUV NoRD/ Re-consult/CRA/APPLUS certifications under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/ CDM Lead Assessor in TUV NoRD and was involved in more than 100 CDM validation and verifications activities in Gold Standard, VCS, CDM projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1, 13 technical areas 1.2/1.1/13.1. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.
2. Hanshen (Denny) Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Appendix 1. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider																								
1	NA	Commissioning certificates of the hydro power plant	Commissioning certificates details are as below:	Project participant																								
			<table><tr><th>Sl. No</th><th>Location</th><th>Capacity of WTG (MW)</th><th>Commissioning Date*</th></tr><tr><td>1</td><td>JTH- 247</td><td>2.1</td><td>08/06/2013</td></tr><tr><td>2</td><td>JTH- 292</td><td>2.1</td><td>08/06/2013</td></tr><tr><td>3</td><td>JTH- 293</td><td>2.1</td><td>08/06/2013</td></tr><tr><td>4</td><td>JTH- 294</td><td>2.1</td><td>11/02/2014</td></tr><tr><td>5</td><td>JTH- 300</td><td>2.1</td><td>11/02/2014</td></tr></table>		Sl. No	Location	Capacity of WTG (MW)	Commissioning Date*	1	JTH- 247	2.1	08/06/2013	2	JTH- 292	2.1	08/06/2013	3	JTH- 293	2.1	08/06/2013	4	JTH- 294	2.1	11/02/2014	5	JTH- 300	2.1	11/02/2014
			Sl. No		Location	Capacity of WTG (MW)	Commissioning Date*																					
			1		JTH- 247	2.1	08/06/2013																					
			2		JTH- 292	2.1	08/06/2013																					
			3		JTH- 293	2.1	08/06/2013																					
			4		JTH- 294	2.1	11/02/2014																					
5	JTH- 300	2.1	11/02/2014																									
Contract document signed between PP and DOE		Project participant																										
3	NA	VVS standard-version 09	UNFCCC web site	UNFCCC																								
4	NA	Joint Meter reading and invoices for the complete monitoring period	Joint Meter reading and invoices for the complete monitoring period	Project participant																								
5	NA	MR version 01	MR version 01 dated 22/05/2017	Project participant																								
		MR version 02	MR version 02 dated 29/08/2017																									
6	NA	ER sheet version 01	ER sheet version 01 dated 22/05/2017	Project participant																								
		ER sheet version 02	ER sheet version 02 dated 29/08/2017																									
7	NA	Actual geo-coordinates by GE	Actual coordinates	Project participant																								
8	NA	Break Down details of both the Units	Log book records onsite	Project participant																								
9	NA	Guidelines for Application of materiality in verifications version 2.0	UNFCCC web site	UNFCCC																								
10	NA	Calibration details of the meters	Calibration details of the meters for the complete monitoring period	Project participant																								
			33/11 KV, Pachchhapur substation, Pachchhapur Feeder																									
			Connected WTGs: JTH292, JTH293, JTH294, JTH247, JTH300																									

			Details of Main Meter		Details of Check Meter	
			Serial No	14953743	Serial No	14953564
			Make	Elster	Make	Elster
			Type	A 1800	Type	A 1800
			Accuracy Class	0.2 s	Accuracy Class	0.2 s
			Calibration frequency	Annual	Calibration frequency	Annual
			Date of Calibration	Calibration Validity⁷	Date of Calibration	Calibration Validity
			17/07/2014	16/07/2019	17/07/2014	16/07/2019
			Details of new feeder connectivity⁸			
			110/33 KV Jath Substation, Feeder-1			
			Connected WTGs: JTH292, JTH293, JTH294, JTH247, JTH300			
			Details of Main Meter		Details of Check Meter	
			Serial No	13813605	Serial No	13813606
			Make	Elster	Make	Elster
			Type	A 1800	Type	A 1800
			Accuracy Class	0.2 s	Accuracy Class	0.2 s
			Calibration frequency	Annual	Calibration frequency	Annual
			Date of Calibration	Calibration Validity⁹	Date of Calibration	Calibration Validity
			07/08/2015	06/08/2020	07/08/2015	06/08/2020
			12/08/2016	11/08/2021	12/08/2016	11/08/2021

⁷ The calibration validity has been mentioned as per revised PDD which considered calibration frequency once in five years as per CEA notification.

⁸ There has been a shift of the feeder connectivity on 01/10/2015 and the new feeder connectivity details are now provided in the table.

⁹ Though state electricity board does calibration less than calibration interval of once in five years, the calibration validity has been mentioned as per revised PDD which considered calibration frequency once in five years as per CEA notification.

Appendix 2. Clarification requests, corrective action requests and forward action requests

Table 1 Remaining FAR from validation and/or previous verification

FAR ID	xx	Section no.	E.2	Date: DD/MM/YYYY
Description of FAR				
<i>Not applicable</i>				
Project participant response				Date: DD/MM/YYYY
<i>Not applicable</i>				
Documentation provided by project participant				
<i>Not applicable</i>				
DOE assessment				Date: DD/MM/YYYY
<i>Not applicable</i>				

Table 2 CL from this verification

CL ID	xx	Section no.		Date: DD/MM/YYYY
Description of CL				
<i>Not applicable</i>				
Project participant response				Date: DD/MM/YYYY
<i>Not applicable</i>				
Documentation provided by project participant				
<i>Not applicable</i>				
DOE assessment				Date: DD/MM/YYYY
<i>Not applicable</i>				

Table 3 CAR from this verification

CAR ID	01	Section no.	B of the MR and Revised PDD for PRC change.	Date: 24/08/2017
Description of CAR				
The technical details are provided in the MR however the documents are not submitted to assessment team. Corrective action is sought for the same.				
Calibration details are missing in the MR.				
Moreover, assessment team noted PRC change for the 1 st verification however MR is silent about the same. Corrective action is sought for the same.				
The business transfer agreement regarding change of ownership as claimed in the revised PDD is not submitted to the DOE. The version number of the revised PDD is same as that of the registered one. Corrective action is sought for the same.				
Section A.4 and Annex 1 of the revised PDD do not depict the name change as claimed in the revised PDD. Corrective action is sought for the same.				
Project participant response				Date: 29/08/2017
<i>The supporting for the technical details are now submitted to the assessment team.</i>				
<i>Calibration details are now provided in the revised MR- version-2.</i>				
<i>The details of the PRC change has now been included in the revised MR- version-2.</i>				
<i>The business transfer agreement regarding change of ownership is now submitted to the DOE. Also, the version number of the revised PDD is now changed and rectified.</i>				

The ownership of the project activity has been transferred from Mahalaxmi Commercial Services Private Limited to Baidyanath Power Private Limited. However the project participant of the project activity remains same as Mahalaxmi Commercial Services Private Limited. Hence no changes are made in section A.4 and Annex 1 of the revised PDD

Documentation provided by project participant

3. *Technical brochure*
4. *Revised MR- version-2*
5. *Business transfer agreement regarding transfer of ownership.*
6. *Revised PDD*

DOE assessment
Date:08/09/2017

Following are the observation of the DOE:

1. The technical details as mentioned in the MR Version 02 is checked by the assessment team from the technical manual of the manufacturers and found correct. Moreover, there is no change in technical description as mentioned in the registered PDD. CAR is thus closed.
2. The calibration frequency is changed from once in year to once in a five year as per the national standard and thus the same is acceptable to the DOE. All calibration records are also checked by the assessment team during the onsite visit. PDD version 02 and MR Version 02 is revised in this context and thus the CAR is closed.
3. Section B.2.2 and B.2.5 is included in the revised MR Version 02. The details are acceptable to the DOE and pertains to PRC change. CAR is thus closed.
4. The ownership of the project activity has been transferred from Mahalaxmi Commercial Services Private Limited to Baidyanath Power Private Limited. However the project participant of the project activity remains same as Mahalaxmi Commercial Services Private Limited. Hence no changes are made in section A.4 and Annex 1 of the revised PDD. CAR is thus closed.

CAR ID	02	Section no.	B of the MR	Date: 24/08/2017
Description of CAR				
The breakdown details of the Power plant (scheduled/forced) are provided in the as supporting, however the description of the same is missing in the MR. Corrective action is sought for further analysis.				
Feeder wise detail of the WTGs is missing. Corrective action is sought.				
Project participant response				Date: 29/08/2017
<i>The breakdown details of the plant has been provided in the revised MR-version-2.</i>				
<i>Feeder details of the WTGs are also mentioned in section C of the revised MR- version-2.</i>				
Documentation provided by project participant				
<i>Revised MR- version-2</i>				
DOE assessment				Date: 08/09/2017
The breakdown details are checked by the assessment team and it is observed that no forced breakdown occurred except for the scheduled maintenance as per the manufacturer's instructions.				
Feeder details are now included in MR version 02 and the same is as per the onsite practice.				
CAR is thus closed.				

CAR ID	03	Section no.	E of the MR	Date: 24/08/2017
Description of CAR				
The monitoring period starts from 24/07/2015, however July 2015 JMR sheet is missing. Moreover, assessment team noted that the billing period for the JMR is from 1st to 1st every month and hence the apportioning for the 7 days in the month of July needs to be detailed out in the MR.				
ER calculation is thus reserved based on the above observation.				
Project participant response				Date: 29/08/2017

The JMR for the month July 15 is already provided. The apportioning procedure has been detailed out in the MR.	
Documentation provided by project participant	
Revised MR- version-2	
DOE assessment	Date: 08/09/2017
The apportioning procedure is checked by the assessment team and confirm that the emission reduction calculation is conservative and correct. The missing JMR for July 2015 is checked and found correct by the assessment team. CAR is thus closed.	

CAR ID	04	Section no.	E of the MR	Date: 24/08/2017
Description of CAR				
During the document review it was observed that the comparison of actual CERs w.r.t estimated CERs in section E.6 of the MR is provided, however since the ER sheet is reserved the section also need revision.				
Project participant response				Date: 29/08/2017
Section E.6 of the MR is made consistent as per the ER sheet.				
Documentation provided by project participant				
Revised MR- version-2				
DOE assessment				Date: 08/09/2017
The comparison of actual vs. estimated is presented in section E.6 of the revised MR version 02. The actual emission reduction for the current monitoring period is lower than the estimated emission reduction by 12.94%, which is due to the lower performance of the wind machines during the current monitoring period.				
CAR is thus closed.				

Table 4 FAR from this verification

FAR ID	xx	Section No.		Date: DD/MM/YYYY
Description of FAR				
Not applicable				
Project participant response				Date: DD/MM/YYYY
Not applicable				
Documentation provided by project participant				
Not applicable				
DOE assessment				Date: DD/MM/YYYY
Not applicable				