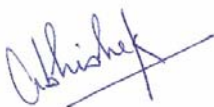
 Verification and certification report form for CDM project activities (Version 01.0)	
<i>Complete this form in accordance with the "Attachment: Instructions for filling out the verification and certification report form for CDM project activities" at the end of this form.</i>	
VERIFICATION AND CERTIFICATION REPORT	
Title of the project activity	IOT Mabagas Limited power plant, Pudhuchatram
Reference number of the project activity	8288
Version number of the verification and certification report	3.1
Completion date of the verification and certification report	02/05/2016
Monitoring period number and duration of this monitoring period	First monitoring period, 01/01/2013 to 31/07/2015
Version number of monitoring report to which this report applies	7.1
Crediting period of the project activity corresponding to this monitoring period	01/01/2013 – 31/12/2022, Fixed, 10 years
Project participant(s)	IOT Mabagas Limited (IML) Carbonbay GmbH & Co. KG
Host Party	India
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	SS 1 : Energy industries (renewable - / non-renewable sources) SS 13 : Waste handling and disposal AMS-III.AO. - Methane recovery through controlled anaerobic digestion AMS-I.D. ver. 17 - Grid connected renewable electricity generation
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	57,694 tCO ₂
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	24,012 tCO ₂
Name of DOE	Earthood Services Private Limited
Name, position and signature of the approver of the verification and certification report	

	Abhishek Mahawar Quality Manager
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SECTION A. Executive summary**Brief summary of the project**

The project activity involves production of 2.4 MW of renewable energy through anaerobic generation of biogas from poultry litter, cow dung and agricultural waste in the village of Thattayangarpatti, in the Puduchatram block of Namakkal district. Generation of clean energy leads to reduction of Green House Gas (GHG) emission that are real, measurable and verifiable and also plays beneficial role in the mitigation of climate change. As verified through commissioning certificate/36/ the project activity got commissioned on 19/12/2012 and is operational since as verified through various plant records as elaborated sections further in report.

The project activity comprises of following components:

S.No	Component	Serial No.	Capacity
1.	Primary digester-1	RO2O1	Total capacity of 16,000m ³
2.	Primary digester-2	RO2O3	
3.	Secondary digester-1	RO2O2	
4.	Secondary digester-2	RO2O4	
5.	Biogas engines (2 Nos)	GG#1, GG#2	2.4 MW total capacity

After the generation of electricity using the above components it is fed into dedicated 22kV transmission line feeder to nearby substation. Details of all the components was verified through onsite visit.

The assessment team confirms that the total emission reductions achieved under this monitoring period 01/01/2013 to 31/07/2015 (including both days) are 24,012 tCO₂e.

The basic details of the project activity are mentioned below:

Project title	IOT Mabagas Limited power plant, Pudhuchatram
UNFCCC registration number	8288
Date of registration	29/11/2012
Sectoral scope	1 : Energy industries 13 : Waste handling and disposal
Methodology/ies applied	AMS-III.AO. ver.01 - Methane recovery through controlled anaerobic digestion AMS-I.D. ver. 17 - Grid connected renewable electricity generation
Project participant	IOT Mabagas Limited (IML) Carbonbay GmbH & Co. KG
Location of Project Activity	Village - SF. Nos.52/1, 52/2, 53/1A and 53/2A Thattayangarpatti, Block - Pudhuchatram, District - Namakkal State - Tamil Nadu
Geographical coordinates	11°23'29.64"N by 78°10'41.44"E

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	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
2.	Verifier	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
3.	Technical Expert (1.1)	IR	Singh	Kaviraj	Central Office	Y	Y	Y	Y
4.	Technical Expert (13.1)	EI	Arora	Kalpana	Central Office	Y	Y	Y	Y
5.	Trainee verifier	IR	Gupta	Anshika	Central Office	Y	N	N	Y

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	Garg	Shreya	Central Office
2.	SS expert to TR	IR	Gautam	Ashok Kumar	Central Office
3.	Approver	IR	Mahawar	Abhishek	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 transferring the recorded data to ER sheet	High	The procedure for transferring the recorded data for each parameter from its source to the spreadsheet is manual in nature thus increasing the chances of error.	All monthly reported values in ER sheet to be verified with the source of parameter values.
2.	Error in recording of data	High	The project requires more than one monitoring equipment in the whole process of ER calculations. They might show wrong readings and be out of calibration.	The calibration certificates to be checked and also the NABL accreditation of the testing agency

C.2. Consideration of materiality in conducting the verification

The applicable threshold for materiality in accordance with CDM VVS Version 9 para 361(c) is 5%. All the daily and monthly reported figures for each parameter were verified with respective sources of values and were found to be consistent. Therefore, it can be stated that the verified value is free from any potential error / omission / misstatement. The project activity, being a waste handling project, has quantified the project emission and leakages inline to the applied methodology/5, 6/. As observed onsite, there are no additional factors which might lead to introduction of error in emission reduction estimation.

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

Earthood conducted a desk review as under;

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, 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;

In addition to the monitoring documentation, Earthood has reviewed;

- The PDD (registered) Version 5.2 dated 03/11/2012 and the monitoring plan, including any approved revised monitoring plan and/or changes from the registered PDD, and the corresponding validation opinion;
- The Validation Report Version 1.2 dated 13/11/2012;
- The applied monitoring methodology;
- The monitoring report (all versions) to verify that it is as per the standardized format;

- Any other information and references relevant to the project activity's emission reductions (e.g. IPCC reports, data on electricity generation in the national grid or laboratory analysis and national regulations).

The complete list of documents reviewed is included under Appendix 3.

D.2. On-site inspection

Duration of on-site inspection: 27/10/2015				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p>An assessment of the implementation and operation of the registered project activity as per the registered PDD or any approved revised PDD;</p> <p>A review of information flows for generating, aggregating and reporting the monitoring parameters;</p> <p>Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD;</p> <p>A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;</p> <p>A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;</p> <p>A review of calculations and assumptions made in determining the GHG data and emission reductions;</p> <p>An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters</p>	Tamil Nadu	27/10/2015	Kaviraj Singh, Kalpana Arora

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Sivakumar	C.	IOT Mabagas	27/10/2015	Project implementation, monitoring plan	Kaviraj Singh, Kalpana Arora
2.	Dabkara	Manish	EKI	27/10/2015	Monitoring plan, sampling, recording and reporting of data, emission reduction calculation	Kaviraj Singh, Kalpana Arora
3.	Prasannayen katesas	R.S.	IOT Mabagas	27/10/2015	Project implementation, monitoring plan	Kaviraj Singh, Kalpana Arora
4.	P.	Ravishankar	IOT Mabagas	27/10/2015	Project implementation, monitoring plan	Kaviraj Singh, Kalpana Arora

D.4. Sampling approach

No sampling approach was followed by the assessment team. All the daily, monthly reported figures in the MR/2/ and ER sheet/3/ were checked from the actual records. The reported data was also verified with cross-checks to maintain a reasonable level of confidence.

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	-	CAR#2, CAR#3, CAR#4	-
Compliance of the project implementation with the registered PDD	-	CAR#3, CAR#5, CAR#6	-
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	-	CAR#7, CAR#8, CAR#9, CAR#10, CAR#11,	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	CL#1,	CAR#12, CAR#13	-
Others (please specify)	-	-	-
Total	1	12	-

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

Means of verification	The monitoring report form used is CDM-MR-FORM version 05.1 /2/ which was the appropriate form and the latest version available at the time of verification, as verified through UNFCCC webpage.
Findings	CL#1, CAR#2 and CAR#3 were raised which were resolved. For details please refer to appendix 3.

Conclusion	All the sections of the form were filled as per the guidelines and gave all the relevant details. The revised monitoring report /2/ was found to be in compliance with the applicable latest monitoring report form and instructions therein.
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E.2. Remaining forward action requests from validation and/or previous verification

This is the first verification of the project activity and there are no FARs raised during validation as checked from the validation report/4/ which requires to be closed during this verification.

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

Means of verification	As verified through onsite visit, the project activity is generating electricity using poultry litter in addition with agricultural waste and cow dung. All the equipment as listed in MR and found functional onsite are as follows:			
	S.No	Component	Serial No.	Capacity
	1.	Primary digester-1	RO2O1	Total capacity of 16,000m ³
	2.	Primary digester-2	RO2O3	
	3.	Secondary digester-1	RO2O2	
	4.	Secondary digester-2	RO2O4	
	5.	Biogas engines (2 Nos)	GG#1, GG#2	2.4 MW total capacity
As observed onsite and verified through interviews and document review, project activity involves generation of electricity using poultry an agricultural waste along with cow dung using a bio-methanation process. The generated electricity is being supplied to state electricity board as verified through power purchase agreement/37/ and invoices issued for net export of electricity/32/. The plant started commercial operation on 19/12/2012 which was verified through commissioning certificate/36/ issued by Tamil Nadu Generation and Distribution Corporation Limited, however the emission reductions have been claimed 01/01/2013 onwards which is also the start date of the crediting period.				
During the monitoring period there were no events or situations that could affect the applicability of applied methodology as verified through plant records of all the parameters discussed in detail in section E.6. below.				
The emission reduction achieved in this monitoring period are 24,012 tCO ₂ e which is lower than the estimated ERs as per registered PDD (57,694 tCO ₂ e)				
Findings	CAR#3 and CAR#5 was raised and resolved. Please refer to appendix 4 for details.			
Conclusion	Assessment concludes the following: a) The implementation status of project activity was found to be in compliance with registered PDD. b) DOE has conducted the on-site visit to confirm the implementation status of the project. c) The commissioning date of the project activity was found to be accurately and consistently recorded. d) The actual operation of project activity was found to be in compliance with the flow diagram provided in registered PDD. e) There was no increase in emission reduction from estimates made in registered PDD, therefore no additional explanation was sought from PP regarding the same. This is in compliance with para 384 of VVS Version 09.			

E.4. Post-registration changes

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

Not applicable

E.4.2. Corrections

Not applicable

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

Not applicable

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

Not applicable

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

Not applicable

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

Not applicable

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

Not applicable

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

Means of verification	The review of applied methodologies AMS-III.AO (ver.01), AMS-I.D. (ver. 17), and monitoring plan as contained in registered PDD/1/, Version 5.2, dated 3/11/2012, establishes that the monitoring plan is consistent with the applied methodology and registered PDD.
Findings	None
Conclusion	The monitoring plan is in accordance with the applied methodology /5,6/ and correctly applied by the registered CDM project activity.

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****E.6.1.1. CO₂ emission factor of the Southern grid, in which the project activity displaced the electricity during the year y, ID. 1./ $EF_{grid,CM,y} = EF_{EL,y}$, tCO₂/GWh**

Means of verification	The registered PDD/1/ gives the value of 865 tCO ₂ /GWh for this parameter. PP has used the data of "CO ₂ Emission Database ", version 6 published by the Central Electricity Authority, Ministry of Power, Government of India/48/
Findings	CAR#6 was raised and resolved. Refer to appendix 4 for details.
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.2. Operating Margin Emission Factor of the Southern grid, ID. 2./ $EF_{grid,OM,y}$, tCO₂/GWh

Means of verification	The registered PDD/1/ gives the value of 966 tCO ₂ /GWh for this parameter. PP has used the data of "CO ₂ Emission Database ", version 6 published by the Central Electricity Authority, Ministry of Power, Government of India/48/
Findings	CAR#6 was raised and resolved. Refer to appendix 4 for details.
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.3. Build Margin Emission Factor of the Southern grid, ID. 3./ $EF_{grid,BM,y}$, tCO_2/GWh

Means of verification	The registered PDD/1/ gives the value of 763 tCO_2/GWh for this parameter. PP has used the data of "CO ₂ Emission Database ", version 6 published by the Central Electricity Authority, Ministry of Power, Government of India/48/
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.4. Global Warming Potential (GWP) of methane, ID. 4./ GWP_{CH_4} , CH_4

Means of verification	The registered PDD/1/ gives the value of 21 for this parameter. PP has used the data of applied methodology AMS-III.AO version 01/5/. However, as per the latest IPCC and UNFCCC standards and guidelines, a value of 25 has been used.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.5. Density of methane at normal conditions, ID. 5./ $D_{CH_4} = \rho_{CH_4,n}$, kg/m^3

Means of verification	The registered PDD/1/ gives the value of 0.67 kg/m^3 for this parameter. PP has used the data of Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry and Other Land Use, authored by IPCC/10/
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.6. Methane conversion factor for manure management (Only for poultry litter), ID. 6./ MCF_j , %

Means of verification	The registered PDD/1/ gives the value of 22.84% for this parameter. PP has used the data of Methane Emission Potential of Poultry Litter (October 2011) issued by Tamil Nadu Agricultural University/40/
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.7. Maximum methane production potential (in the baseline situation). LT =Livestock = poultry, ID 7./ $B_{o,LT}$, m^3CH_4/kg

Means of verification	The registered PDD/1/ gives the value of 0.24 m^3CH_4/kg for this parameter. PP has used the data of Guidelines for National Greenhouse Gas Inventories issued by IPCC in 2006/10/.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.8. Volatile solids for livestock LT, ID. 8./ $VS_{default}$, $Kg/head/day$

Means of verification	The registered PDD/1/ gives the value of 0.02 $Kg/head/day$ for this parameter. PP has used the data of Guidelines for National Greenhouse Gas Inventories issued by IPCC in 2006/10/.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.9. Fraction of manure handled in baseline animal manure management system j in year y, ID. 9./ $MS\%_{BI,j,y}$, %

Means of verification	The registered PDD/1/ gives the value of 100% for this parameter. PP has used the data of Methane Emission Potential of Poultry Litter (October 2011) issued by Tamil Nadu Agricultural University/40/.
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Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.10. CO₂ emission factor of diesel used in the year y, ID. 10./ $EF_{CO_2,diesel,y}$, tCO₂/TJ

Means of verification	The registered PDD/1/ gives the value of 74.8 tCO ₂ /TJ for this parameter. PP has used the data of Guidelines for National Greenhouse Gas Inventories issued by IPCC in 2006/10/.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.11. Net calorific value of diesel, ID. 11./ NCV_{Diesel} , GJ/t

Means of verification	The registered PDD/1/ gives the value of 43.3 GJ/t for this parameter. PP has used the data of Guidelines for National Greenhouse Gas Inventories issued by IPCC in 2006/10/.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.12. Density of diesel, ID. 12./ ρ_{diesel} ,

Means of verification	The registered PDD/1/ gives the value of 0.83 t/m ³ for this parameter. PP has used the data of "CO ₂ Emission Database", version 6 published by the Central Electricity Authority, Ministry of Power, Government of India/48/
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.13. CO₂ emission factor from fuel use due to transportation, ID. 13./ $EF_{CO_2,transport}$, kgCO₂/km

Means of verification	The registered PDD/1/ gives the value of 0.326 kgCO ₂ /km for this parameter. PP has calculated the data based on contracts obtained from logistics company assuming an average fuel consumption of 8 km/litre.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.14. Flare efficiency in hour h based on measurements or default values, ID. 14./ $\eta_{flare,h} = FE_y$, %

Means of verification	The registered PDD/1/ gives the value of 90% for this parameter. PP has used the default values from Methodological Tool to determine project emissions from flaring gases containing methane (Version 01)/15/.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.15. Volumetric fraction of CH₄ in the residual gas in the hour h, ID.15./ $fv_{CH_4,RG,h}$, mg/m³

Means of verification	The registered PDD/1/ gives the value of 60% for this parameter. PP has used the data from Methane Emission Potential of Poultry Litter (October 2011) issued by Tamil Nadu Agricultural University/40/.
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.16. Average technical transmission and distribution losses for providing electricity to source j in year y, ID. 16./ $TDL_{j,y}$

Means of verification	The registered PDD/1/ gives the value of 20% for this parameter. PP has used the data from methodological tool "Tool to calculate baseline, project and/or leakage emissions from electricity consumption (Version 01)
Findings	None
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.1.17. Model correction factor to account for model uncertainties, UFb

Means of verification	The parameter has not been included in registered PDD, however was used in ER calculation. The registered PDD/1/ gives the value of 0.94 for this parameter on page 45 in ER calculation. It has been added as an ex-ante value in this monitoring period for clarity purpose. The value does not need validation (and thus PRC) because it is a standard value and also represented in registered PDD in ER calculation description. PP has used the data from methodology AMS.III.D Version 18 which was found to be appropriate and traceable.
Findings	CAR#13 was raised and resolved. Refer to appendix 4 for details.
Conclusion	The value used for the parameter is found to be correct and justified. The source of information was found to be relevant, credible and traceable. It has been consistently used and reported in MR/2/ and ER calculation/3/.

E.6.2. Data and parameters monitored
E.6.2.1. The gross electricity generated by the project activity, ID. 18./ $EG_{gross,y}$, GWh/y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is monitored continuously and reported monthly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Monitoring equipment used for monitoring this parameter is a Konzerv-EM 6400 make 0.5s accuracy class energy meter with serial number 205229/270-3310. The above information was verified through onsite visit. Information was found to be consistent.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Calibration frequency is once in three years, however, calibration certificates were not made available. This was found to be acceptable by assessment team since values of this parameter

		or any derived value is not used directly or indirectly into emission reduction calculations.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	N/A
	Is the calibration of measuring equipment carried out by an accredited person or institution?	N/A
	Is (are) calibration(s) valid for the whole reporting period?	N/A
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	N/A
	How were the values in the monitoring report verified?	The value of 18.636 GWh was verified from monthly reports in log books maintained onsite/27/. Value was found to be consistently reported.
	If applicable, has the reported data been cross-checked with other available data?	Gross energy generation data was cross-checked with daily log book data of import and export of electricity/28/. The values were found to be comparable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#7 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	Through onsite audit and assessment of documents DOE can conclude that : <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.2. Net electricity supplied by the project activity to the grid, ID. 19./EGBL, GWh/y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is monitored continuously and recorded monthly.
	Is measuring and reporting frequency in accordance with the	Yes

	monitoring plan and monitoring methodology? (Yes / No)	
	Monitoring equipment	Parameter is monitored using a main and a check meter. Both these meters are of Secure make with 0.2 s accuracy. Serial number of main meter is TNE59496 and check meter is TNE59499. The above details has been checked while onsite visit and through calibration certificates for both/20, 21/.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Calibration frequency is once in three years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Calibration frequency is in line with monitoring plan.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of both the measuring equipment has been conducted by Yadav Measurement Private Limited/20, 21/ which is an NABL accredited laboratory as verified through directory of accredited testing laboratories issued by NABL on 01/02/2015/42/.
	Is (are) calibration(s) valid for the whole reporting period?	Yes calibration is valid for whole monitoring period. Calibration for main meter was conducted on 30/08/2012 and for check meter it has been carried out on 27/08/2012 as verified through calibration certificates of both/20,21/. Both the calibrations are valid for 3 years thus covering the entire reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Calibration has been carried out for a measuring range comparable with range of measurement.
	How were the values in the monitoring report verified?	Value of 15.818 GWh was verified from TANGEDCO reports issued monthly/32/. Values were found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Values were cross-checked from monthly invoices issued by PP to TANGEDCO/29/. Values were found to be consistent.

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#7 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.3. Net electricity imported from the grid in case the Power units are not operating, ID. 20./ ECPJ,y, GWh/y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The monitoring is done continuously and reporting is done monthly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Parameter is monitored using a main and a check meter. Both these meters are of Secure make with 0.2 s accuracy. Serial number of main meter is TNE59496 and check meter is TNE59499. The above details has been checked while onsite visit and through calibration certificates for both/20, 21/.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Calibration frequency is once in three years.
	Is the calibration interval in line with the monitoring plan and/or	Calibration frequency is in line with monitoring plan.

	methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of both the measuring equipment has been conducted by Yadav Measurement Private Limited/20, 21/ which is an NABL accredited laboratory as verified through directory of accredited testing laboratories issued by NABL on 01/02/2015/42/.
	Is (are) calibration(s) valid for the whole reporting period?	Yes calibration is valid for whole monitoring period. Calibration for main meter was conducted on 30/08/2012 and for check meter it has been carried out on 27/08/2012 as verified through calibration certificates/20,21/. Both the calibrations are valid for 3 years thus covering the entire reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Calibration has been carried out for a measuring range comparable with range of measurement.
	How were the values in the monitoring report verified?	Value of 0.294 GWh was verified from TANGEDCO reports issued monthly/32/. Values were found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Values were cross-checked from monthly invoices issued by PP to TANGEDCO/29/ and monthly import details/31/. Values were found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#7 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.4. Amount of waste type *i* (poultry litter, agricultural wastes, cow dung) used at the plant, ID.
21./ $Q_{i,y}$, t/y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Each truck loading is monitored and reported monthly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Parameter is monitored using two weighbridges of Ricelake Weighing Systems with an accuracy class of +/-0.025% of FS and serial numbers RH 1151 and RH 1152. All the above details were found consistent onsite and with calibration certificates/23/
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Once in 3 years
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Calibration interval is in line with the monitoring plan and methodology.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of both weighbridges has been conducted by government of Tamil Nadu/23/
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 27/08/2012 for both weighbridges as verified through its calibration certificate/23/. Calibration is valid for three years thus whole reporting period has been covered.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Values as reported in ER sheet for different periods has been checked with weighbridge records maintained onsite/35/.

	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	None	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.5. Amount of treated residue (compost) shipped off, ID. 22./Qres waste,y, t/y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Each truck is monitored and monthly reported.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Parameter is monitored using two weighbridges of Ricelake Weighing Systems with an accuracy class of +/-0.025% of FS and serial numbers RH 1151 and RH 1152. All the above details were found consistent onsite and with calibration certificate/23/.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Once in 3 years

	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Calibration interval is in line with the monitoring plan and methodology.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of both weighbridges has been conducted by government of Tamil Nadu/23/
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 27/08/2012 for both weighbridges as verified through its calibration certificate/23/. Calibration is valid for three years thus whole reporting period has been covered.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Values as reported in ER sheet for different periods has been checked with weighbridge records maintained onsite/35/.
	If applicable, has the reported data been cross-checked with other available data?	The reported values were cross-checked with invoices generated for export of fertilizer/33/. The values were found to be comparable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	None	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.6. Methane content in the biogas (dry), ID.23./ wCH₄, %

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Parameter is monitored continuously, recorded every 10 minutes and reported monthly

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Parameter is monitored using a gas analyser of Union Instruments GmbH, INCA4001 T100-02 make, +/- 1% accuracy class and serial number 94116. The details were verified by calibration certificate/18/ and onsite visit. Information was consistently reported.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Accuracy is as stated in monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for entire measuring range.
	Calibration frequency /interval:	Once in three years
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Calibration interval is in line with the monitoring plan and methodology.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration has been conducted by Union instruments GmbH which is also the manufacturer of same equipment/18/
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 25/09/2012 and valid till 24/09/2015 which was verified by calibration certificate/18/. Thus calibration is valid for entire reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Values reported in ER sheet has been verified from gas analyser log data maintained onsite/43/. Values were found to be consistently reported.
	If applicable, has the reported data been cross-checked with other available data?	Reported data has been cross-checked with monthly reports maintained onsite/43/. Values were found to be consistently reported.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#8, CAR#9 were raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.7. Volumetric flow rate of the residual gas in dry basis at normal conditions in hour h , ID. 24./FVRG, h , m³/h

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measured continuously, recorded half hourly and reported monthly
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	The parameter is monitored with the help of an Endress + Hause make thermal mass flow meter of accuracy class +/-1.8% of reading +0.1% full scale. Serial number of equipment is HAO 3CE02000. The specifications of equipment were concluded consistent with the help of onsite visit and calibration certificate/19/.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Once in three years
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the	Yes

	local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration has been carried out by the manufacturer of the meter itself as verified by calibration certificate/19/.
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 30/10/2012 which is valid till 30/10/2015 as per the calibration certificate/19/. Thus entire monitoring period has been covered.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Values as reported in ER sheet were verified using half hourly reported data in log books maintained onsite/44/. Values were found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Data was cross-checked with monthly reported gas flow meter readings. Values were found to be consistent/44/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#9 and CAR#11 were raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.8. The amount of the biogas combusted, measured on a dry basis, ID.25./ BGcombusted,y, m³/y (normalized)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measured continuously, recorded half hourly and reported monthly
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Parameter is monitored using a flow meter of Endress + Hause make with serial number HAO

		3CF02000 and accuracy class $\pm 0.1\%$. This has been verified using calibration certificate/45/ and onsite visit. Information was found to be consistent.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Once in three years
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration has been carried out by the manufacturer of equipment itself as verified through calibration certificate/45/.
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 30/10/2012/45/ which is valid till 30/10/2015 thus covering the entire monitoring period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Reported values as per ER sheet and MR (8,808,976 m ³) were verified through reading log books maintained onsite/46/. Values were found to be consistently reported. It should be noted that values given by the flow meter are normalised thus additional monitoring of pressure and temperature is not required.
	If applicable, has the reported data been cross-checked with other available data?	Reported data as cross-checked with monthly report generated/46/. Information was found to be consistently reported.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#4 and CAR#9 were raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.9. The amount of biogas generated that is flared, measured on a dry basis, ID.26./ BG_{flared,y}, m³/y (normalized)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measured continuously, recorded half hourly and reported monthly
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	The parameter is monitored with the help of a Endress + Hause make thermal mass flow meter of accuracy class +/-1.8% of reading +0.1% full scale. Serial number of equipment is HAO 3CE02000. The specifications of equipment were concluded consistent with the help of onsite visit and calibration certificate/19/.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Once in three years
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the	Yes

	local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration has been carried out by the manufacturer of the meter itself as verified by calibration certificate/19/.
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 30/10/2012 which is valid till 30/10/2015 as per the calibration frequency. Thus entire monitoring period has been covered.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Values as reported in ER sheet were verified using half hourly reported data in log books maintained onsite/47/. Values were found to be consistent. It should be noted that values given by the flow meter are normalised thus additional monitoring of pressure and temperature is not required.
	If applicable, has the reported data been cross-checked with other available data?	Data was cross-checked with monthly reported gas flow meter readings. Values were found to be consistent/47/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#9 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> • The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. • Monitoring results are consistently recorded as per approved frequency • QA/QC procedures have been applied in accordance with the registered monitoring plan. • No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.10. Number of times each batch is tilled, ID. 27./ Frequency of tilling, Number

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	It is monitored and reported daily
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes

	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is (are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	Values reported in ER sheet has been verified using the tilling records maintained onsite/38/. Values were found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#9 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	Through onsite audit and assessment of documents DOE can conclude that : <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where 	

	<p>there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09.</p> <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity.
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E.6.2.11. Amount of diesel consumption for operation at site for e.g. tillers and diesel generator set, ID. 28./FC_{Diesel}, Litres

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Monitored daily and reported monthly
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is (are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	Value of 96,592 Litres was verified using diesel consumption records/48/ maintained onsite. Values were found to be consistently reported.

	If applicable, has the reported data been cross-checked with other available data?	Reported value was cross-checked using invoices received by PP for diesel purchase/24/. Values were found to be comparable. There were no other diesel consuming equipment found onsite.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	None	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> The equipment used for monitoring of parameter is calibrated by the PP at a frequency specified in the applied monitoring methodology and registered monitoring plan. Where there is a gap in calibration, an appropriate error factor has been applied inline to para 395 (a) of VVS Version 09. Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.12. Temperature in the exhaust gas of the flare, ID. 29./ T_{flare} , Deg C

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Monitored continuously, recorded half hourly and reported monthly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	The parameter is monitored using 4 TempSENS make thermocouple with an accuracy class of +/- 0.5% and serial numbers 10-TC-80322, 10-TC-80323, 10-TC-80324, 10-TC-80325. The above details were found to be consistent with calibration certificates/22/ and onsite observation of assessment team.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the equipment is as per the monitoring plan.

	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Accuracy is valid for the entire measuring range.
	Calibration frequency /interval:	Once in three years
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration was conducted by Hi Tech Calibration Services/22/ which is an NABL accredited company as verified through list of NABL accredited testing laboratories issues by NABL in 2015/42/.
	Is (are) calibration(s) valid for the whole reporting period?	Calibration was conducted on 5/06/2012 which makes it applicable till 04/06/2015. It does not cover the entire monitoring period. However, no correction factor has been applied as flaring in the period after June 2015 is 0. This approach was found to be conservative and appropriate.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes
	How were the values in the monitoring report verified?	Values as reported in ER sheet has been verified using plant records of half hourly reading of temperature in exhaust gas of flare /49/. Values were found to be consistently reported.
	If applicable, has the reported data been cross-checked with other available data?	Reported data was cross-checked with monthly generated reports maintained on site/49/. Values were found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#10 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.13. Livestock population, ID. 30./ *N_LT_y*, Individual bird

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	It is calculated and annually recorded
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is (are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	The calculation done and input values as reported in ER sheet has been verified using the source of information i.e. report from Tamil Nadu Agricultural University/40/. Values were found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	The value of incoming chicken litter which were used for calculation of this parameter has been checked with weighbridge slips/35/. Values were found to be comparable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and	Data management and QA/QC procedures were found to be appropriate.

	are necessary QA/QC processes in place?	
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	None	
Conclusion	Through onsite audit and assessment of documents DOE can conclude that : <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. No sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.14. Average incremental distance for waste type *i* (poultry litter, agri waste and cow dung) transportation, ID. 31./DAF_{w,i}, km/truck

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Monitored and recorded on each truck basis. Values are sampled for calculation purpose for this parameter in the monitoring period inline to annex 4 of registered PDD/1/. Number of samples as represented in ER sheet were found to be as per the validated numbers. Justification of sample size has been given in ER calculation sheet along with the demonstration of how it is meeting the precision and accuracy set in registered monitoring plan (90/10). The explanation was found to be legit and statistically sound.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or	Not applicable

	methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is (are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	Sampled values recorded in ER sheet has been verified from weighbridge slips for import of waste/35/ which consisted information regarding type and source of waste coming in. Values were found to be consistently reported.
	If applicable, has the reported data been cross-checked with other available data?	The given values were checked using independent sources such as Google maps/51/ (maps.google.com). Values were found to be comparable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	CAR#10 was raised and resolved. Refer to appendix 4 for details.	
Conclusion	<p>Through onsite audit and assessment of documents DOE can conclude that :</p> <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. Sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.15. Average incremental distance for compost transportation, ID. 32./ DAFres waste, km/truck

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Reported on each truck basis. Sampling approach is followed for this parameter inline to annex 4 of registered PDD/1/. Validated value for sample size is 13 which is also the number of samples taken to determine this parameter. Justification of sample size has been given in ER calculation sheet along with the demonstration of how it is meeting the precision and accuracy set in registered monitoring plan (90/10). The

		explanation was found to be legit and statistically sound.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Not applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency Not applicable of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable
	Is (are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	Sampled values as reported in ER sheet were verified using weighbridge slips for exported fertilizer/34/ which consisted of information about destination of material. Values were found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	Reported values were cross-checked using invoice generated for exported fertilizer/33/. Values were found to be comparable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	None	
Conclusion	Through onsite audit and assessment of documents DOE can conclude that : <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. Sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.2.16. Proper application of compost, ID. 33./ APP_{comp}, %-age

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Sampled on each truck basis. Justification of sample size has been given in ER calculation sheet along with the demonstration of how it is meeting the precision and accuracy set in registered monitoring plan (90/10). The explanation was found to be legit and statistically sound.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	Not applicable as this is a sampling survey conducted by third party.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not applicable
	Calibration frequency /interval:	Not applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not applicable

	Is (are) calibration(s) valid for the whole reporting period?	Not applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not applicable
	How were the values in the monitoring report verified?	Value as reported in ER sheet has been verified using the farmer's feedback record/26/ as recorded during third party survey. The information concluded in the survey is that organic compost generated has been used by farmers to grow various varieties of crops including tobacco, turmeric, maize, coconut etc. Farmers were of an opinion that compost increased yield of soil. The validated sample size of 20 hectares was also maintained.
	If applicable, has the reported data been cross-checked with other available data?	The reported data was cross-checked with invoices generated while exporting the fertilizer/33/. It was evident that compost has been transported to farmers in nearby area.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Data management and QA/QC procedures were found to be appropriate.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	Not applicable
Findings	None	
Conclusion	Through onsite audit and assessment of documents DOE can conclude that : <ul style="list-style-type: none"> Monitoring results are consistently recorded as per approved frequency QA/QC procedures have been applied in accordance with the registered monitoring plan. Sampling approach has been followed for monitoring which is appropriate for the project activity. 	

E.6.3. Implementation of sampling plan

Means of verification	Sampling plan has been applied in accordance with standard for sampling and surveys for CDM project activities and programme of activities (Version 2.0). Sampling has been conducted for three parameters, i.e. $DAF_{w,l}$, $DAF_{res\ waste}$ and APP_{comp} . Sampling method used for $DAF_{w,l}$ is stratified random and simple random sampling has been done for other two parameters. Sample size has been determined using 90/10 confidence margin. As per registered PDD/1/, sample size has been decided on the basis of total population. Sample size has been determined appropriately for all three parameters and inline to plan set in registered PDD/1/. It has also been elaborated in excel sheet that how sample size is meeting the precision criteria .
Findings	None
Conclusion	The verification team confirms that the sampling plan and the parameter values are in accordance with the monitoring plan provided in PDD /01/. Sample size calculation and precision criteria was found to be inline with registered PDD/1/.

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

Means of verification	
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Equipment	Serial number	Calibration date	Calibration valid till	MP covered?
Weigh Bridge	RH 1151	27-Aug-12	26-Aug-15	Y
Weigh Bridge	RH 1152	27-Aug-12	26-Aug-15	Y
Gas Analyzer	94116	25-Sep-12	24-Sep-15	Y
Thermal Mass Flow Meter	HAO 3CE02000	30-Oct-12	30-Oct-15	Y
Flow Meter	HAO 3CF02000	30-Oct-12	30-Oct-15	Y
Thermocouple	10-TC-80322, 10-TC-80323, 10-TC-80324, 10-TC-80325	5-Jun-12	4-Jun-15	N

As shown in the table above, all the monitoring equipment has been calibrated in 2012 which has a valid calibration till 2015. All the calibrations are covering monitoring period except thermocouple used for monitoring of parameter ID 29 (Temperature in the exhaust gas of the flare). However, as flaring was 0 in period of June-2015 to July-2015, correction factor has not been applied as it would not impact emission reduction in any which way. Thus, the approach was found to be acceptable by assessment team.

Findings	None
Conclusion	All the above meters are duly calibrated before the expiry of the calibration validity, and cover the monitoring period. Legible justification has been given for the equipment which does not cover monitoring period and also does not apply correction factor. Moreover, it has been confirmed that no emergency procedures has been applied for the monitoring equipment during the current monitoring period and all the meters were under valid calibrated period and working properly. It is noteworthy that the delay in the calibration of meters occurred in the current monitoring period is appropriately addressed in line with paragraph 395(a) of VVS version 09.

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

There are two types of baseline emissions in the project activity calculates in accordance with two applied methodologies, i.e. AMS.I.D Ver. 17 and AMS.III.AO Ver. 01:

1. Baseline emission from electricity generation which is calculated using the following formula:

$$BE_{Elec,y} = EG_{BL,y} * EF_{CO2,grid,y}$$

Where:

EG_{BL,y} is Net electricity supplied by the project activity to the grid

And EF_{CO2,grid,y} is emission factor fixed ex-ante as 865 tCO₂/GWh

2. Baseline emission from poultry litter

$$BE_{manure,y} = GWP_{CH4} * D_{CH4} * UF_b * \sum MCF_j * B_{0,LT} * N_{LT,y} * VS_{LT,y} * MS\%_{BI,j}$$

Where:

Variable	Description	Value applied	Unit
GWP _{CH4}	Global Warming Potential of methane	25	-
D _{CH4}	Density of methane at normal conditions	0.67	kg/m ³
UF _b	Model correction factor to account for model Uncertainties	0.94	-
MCF _j	Methane conversion factor	22.84	%

		for manure management.		
	B ₀ , LT	Maximum methane production potential	240	M ³ CH ₄ /t
	NLT _y	Livestock population	Refer ER sheet for month wise calculations	birds
	VSLT _y	Volatile solids for Chicken litter produced per head	0.02	kg/head/day
	MS%BI _u	Fraction of manure handled in baseline animal manure management system j in year y	100%	-
<p>All the data were available as per required monitoring frequency.</p> <p>The baseline emissions are calculated as per provisions indicated in the registered PDD/1/ and applied methodology/5,6/. The means of verification for the parameter are described under section E.6.2.</p> <p>Please note, the net electricity considered for baseline emission is electricity exported by the project activity. This was accepted by the assessment team since the project applies AMS I.D and AMS III AO and the later methodology requires the PP to evaluate project emissions from the power consumed. In the project setup the state authority issues a combined statement which includes the electricity exported by the project activity and power imported by the project. Hence the PP has evaluated baseline emissions considering the energy exported based on the statements which also form the basis of monetary transactions. And the energy imported is considered under project emissions as required by AMS III AO. This was accepted as a conservative approach as along with the energy imported it also discounts the distribution and transmission losses (20%). Therefore the team is of the opinion that the approach would result in overall conservative total emission reductions.</p>				
Findings	CAR#13 was raised and resolved.			
Conclusion	<p>Calculation of baseline GHG emissions was found to be satisfactory.</p> <p>The verification team confirms that</p> <p>(a) The monitored data was available in accordance with the registered monitoring plan;</p> <p>(b) The monthly reported data was cross-checked, as prescribed in the registered PDD, with the invoices /14/ and was found consistent;</p> <p>(c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals have been followed;</p> <p>(d) The assumptions, emission factors and default values that were applied in the calculations have been justified;</p> <p>(f) The first day in which CERs are being claimed has been correctly specified, where applicable.</p>			

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

Means of verification	<p>Project emission has been calculated using the following formula:</p> $PE_y = \left\{ PE_{transp,y} + PE_{power,y} + PE_{res.waste,y} + PE_{phy.leakage,y} + PE_{flaring,y} \right\}$ <p>Project emission due to residual waste is not considered since residual waste from digestion is not stored anaerobically or sent to landfill. Thus PE_{res.waste,y} is considered as 0 which is appropriate as per registered PDD.</p> <p>PE_{phy.leakage,y} has been calculated as "Total Biogas production*Methane*0.05*GWP of methane". The value of 0.05 is a default factor validated in registered PDD for</p>
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	<p>m³ of biogas leaked/m³ biogas produced. Thus the calculation method was found to be appropriate and correct as per registered PDD.</p> <p>All the data were available as per required monitoring frequency.</p> <p>The project emissions are calculated as per provisions indicated in the registered PDD/1/ and applied methodology/5,6/. The means of verification for the parameter are described under section E.6.2.</p>
Findings	None
Conclusion	<p>Calculation of project GHG emissions was found to be satisfactory.</p> <p>The verification team confirms that:</p> <p>(a) The monitored data was available in accordance with the registered monitoring plan;</p> <p>(b) The monthly reported data was cross-checked, as prescribed in the registered PDD, with the invoices /14/ and was found consistent;</p> <p>(c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals have been followed;</p> <p>(d) The assumptions, emission factors and default values that were applied in the calculations have been justified;</p> <p>(f) The first day in which CERs are being claimed has been correctly specified, where applicable.</p>

E.8.3. Calculation of leakage GHG emissions

Means of verification	As per methodology and registered PDD, leakages have been counted as zero.
Findings	None
Conclusion	No leakages are applicable to the project activity.

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

Means of verification	<p>As per registered PDD/1/, ER calculation has to be done using two equations and a minimum value of two has to be considered. The two equations are as follows:</p> $ER_{y,ex\ post} = \min \left[(BE_{y,ex\ post} - PE_{y,ex\ post} - LE_{y,ex\ post}), (MD_y - PE_{y,power,ex\ post} - PE_{y,transp,ex\ post} - PE_{y,res\ waste,ex\ post} - PE_{y,phy\ leakage,ex\ post} - LE_{y,ex\ post}) \right]$ <p>Calculation according to both the equations has been elaborated in ER sheet. Minimum value of emission reduction was achieved using the first equation out of the two given above. Thus the same value was used which was found to be conservative. The ER according to first equation came out to be 24,012 tCO₂e.</p> <p>The GHG emission as calculated according to the registered PDD is 57,694 tCO₂e. During this monitoring period, total GHG emission reduction or net GHG removals by sinks is estimated to be 24,012 (tCO₂e). Achieved baseline emissions are 30,681 tCO₂e, project emissions are 6,669 tCO₂e and leakages are nil.</p>
Findings	CL#1 and CAR#12 were raised and resolved. Refer to appendix 4 for details.
Conclusion	<p>The verification team confirms that appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project GHG emissions or actual net GHG removals and leakage GHG emissions have been followed;</p> <p>The assumptions, emission factors and default values that were applied in the calculations have been justified.</p>

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

Means of verification	Actual emission reduction is 58% lower than the emission reductions for the considered monitoring period as per estimates in the approved PDD/1/. The actual emission reductions claimed to be achieved in the MR is 24,012 tCO ₂ e whereas, estimated ERs in the registered PDD is 57,694 tCO ₂ e.
Findings	None

Conclusion	Justification of lower emission reductions has been included in the section E.6 of the revised MR. The explanation included in the revised MR/4/ was found acceptable. Thus comparison of actual GHG emission reduction with estimates in registered PDD/1/ was found OK.
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E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	As the achieved emission reduction are lower than the estimates, no additional explanation was sought from PP.
Findings	None
Conclusion	The difference in emission reduction difference has been given satisfactorily in section E6 of MR.

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	<p>Earthood Services Private Limited is able to certify that the emission reductions from the CDM project activity 8288 "IOT Mabagas Limited power plant, Pudhuchatram" in India during the period 01/01/2013 to 31/07/2015 (including both days) amount to 24,012 tCO₂e.</p> <p>Verified and certified emission reductions as per commitment period:</p> <table> <tr> <th>Commitment period</th><th>Amount</th></tr> <tr> <td>Upto 31/12/2012 (1st commitment period)</td><td>0 tCO₂e</td></tr> <tr> <td>From 01/01/2013</td><td>24,012 tCO₂e</td></tr> </table>	Commitment period	Amount	Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e	From 01/01/2013	24,012 tCO ₂ e
Commitment period	Amount						
Upto 31/12/2012 (1 st commitment period)	0 tCO ₂ e						
From 01/01/2013	24,012 tCO ₂ e						
Findings	None						
Conclusion	Actual GHG emission reductions in the first commitment period (upto 31/12/2012) were found to be 0 tCO ₂ e and for second commitment period (01/01/2013 onwards) were found to be 24,012 tCO ₂ e						

SECTION F. Internal quality control

The draft verification report that is prepared by verification team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team.

During the technical review process additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized on behalf of Earthood Services Private Limited.

SECTION G. Verification opinion

Earthood Services Private Limited (Earthood), contracted by "Carbonbay GmbH & Co. KG", has performed the independent verification of the emission reductions for the CDM project activity 8288 "IOT Mabagas Limited power plant, Pudhuchatram" in India for the monitoring period 01/01/2013 to 31/07/2015 (including both days) as reported in the Monitoring Report (public) Version 1 dated 28/08/2015. Carbonbay GmbH & Co. KG is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

Earthood commenced the verification on the basis of the baseline and monitoring methodology AMS-III.AO. ver.01 and AMS-I.D. ver. 17, the monitoring plan contained in the PDD Version 5.2 dated 3/11/2012, Monitoring Report (public) Version 1 dated 28/08/2015.

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated as reported in final MR and corresponding ER sheet.

The verification team confirms that:

- The project activity was found completely implemented as per the description given in the registered PDD.
- The actual operation conforms to the description in the registered PDD.

SECTION H. Certification statement

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

In our opinion the GHG emissions reductions reported for the project activity for the period 01/01/2013 to 31/07/2015 (including both days) are fairly stated in the Monitoring Report (final) Version 7.1 dated 02/05/2016. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS-III.AO. ver.01 and AMS-I.D. ver. 17 and the monitoring plan contained in the PDD Version 5.2 dated 03/11/2012.

Earthood Services Private Limited is able to certify that the emission reductions from the CDM project activity 8288 "IOT Mabagas Limited power plant, Pudhuchatram" in India during the period 01/01/2013 to 31/07/2015 (including both days) amount to 24,012 tCO₂e.

Verified and certified emission reductions as per commitment period:

Commitment period	Amount
Upto 31/12/2012 (1 st commitment period)	Nil
From 01/01/2013	24,012 tCO ₂ e

Appendix 1. Abbreviations

Abbreviations	Full texts
AS	Accreditation Standard
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CER	Certified Emission Reduction(s)
CL	Clarification Request
CPCB	Central Pollution Control Board
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
Earthood	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GOI	Government Of India
IR	Internal Resource
IPCC	Intergovernmental Panel on Climate Change
MOEF	Ministry of Environment and Forests
MR	Monitoring Report
MW	Mega Watt
NABL	National Accreditation Board for Testing and Calibration Laboratories
PDD	Project Design Document
PP	Project Participants
PPA	Power Purchase Agreement
QA/QC	Quality Assurance / Quality Control
tCO ₂ e	tonnes of Carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VCR	Verification and Certification Report

Appendix 2. Competence of team members and technical reviewers

Competence Statement	
Name	Kaviraj Singh
Country	India
Education	Ph.D. (Environmental Engineering), IIT Delhi M.Phil. (Energy & Environmental), DAVV Indore
Experience	8 Years
Field	Climate Change & Environment
Approved Roles	
Team Leader	YES
Validator	YES
Verifier	YES
Financial Expert	NO
Technical Reviewer	YES

TA Expert (1.1)	YES		
TA Expert (1.2)	YES		
TA Expert (13.1)	YES		
TA Expert (13.2)	YES		
TA Expert (15.2)	YES		
Reviewed by	Abhishek Mahawar	Date	29/12/2014
Approved by	Ashok Gautam	Date	29/12/2014

Competence Statement			
Name	Anshika Gupta		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	9 months		
Field	Climate Change		
Approved Roles			
Team Leader	NO		
Validator	YES (trainee)		
Verifier	YES (trainee)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (1.2, 3.1)	YES (trainee)		
Reviewed by	Abhishek Mahawar	Date	01/07/2015
Approved by	Ashok Kumar Gautam	Date	01/07/2015

Competence Statement			
Name	Kalpana Arora		
Country	India		
Education	M.Sc. (MicroBiology), Ph.D. (Waste Management)		
Experience	8 Years		
Field	Waste management, Animal Waste, Environment		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (13.1, 13.2 & 15.1)	YES		
Reviewed by	Abhishek Mahawar	Date	30/12/2014
Approved by	Ashok Kumar Gautam	Date	30/12/2014

Competence Statement	
Name	Shreya Garg
Country	India

Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	4 Years		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.2)	YES		
Reviewed by	Abhishek Mahawar	Date	29/12/2014
Approved by	Ashok Gautam	Date	29/12/2014

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	14 Years		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.1)	YES		
TA Expert (3.1)	YES		
TA Expert (13.1)	YES		
Reviewed by	Abhishek Mahawar	Date	29/12/2014
Approved by	Kaviraj Singh	Date	29/12/2014

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	IOT Mabagas	Registered CDM PDD, Version 5.2	Dated 03/11/2012	PP
2.	IOT Mabagas	Monitoring Report (Publication) Version 01 Monitoring Report (Final) Version 7.1	Dated 28/08/2015 Dated 02/05/2016	PP
3.	IOT Mabagas	Emission reduction sheet (Final)	-	PP
4.	Perry Johnson Registrar Carbon Emission Services, Inc	Validation report No. C-1-I-01-S-0167_VA, Version 1.2	Dated 13/11/2012	PP
5.	UNFCCC	Methodology AMS-III.AO. ver.01 - Methane recovery through controlled anaerobic digestion	Dated 26/11/2010	Others
6.	UNFCCC	Methodology AMS-I.D. ver. 17 - Grid connected renewable electricity generation	Dated 03/06/2011	Others
7.	UNFCCC	CDM PS Ver. 9, available at http://cdm.unfccc.int/Reference/Standards/index.html	Link last accessed on 09/02/2016	Others
8.	UNFCCC	CDM PCP Ver. 9, available at http://cdm.unfccc.int/Reference/Standards/index.html	Link last accessed on 09/02/2016	Others
9.	UNFCCC	CDM VVS Ver. 9, available at http://cdm.unfccc.int/Reference/Standards/index.html	Link last accessed on 09/02/2016	Others
10.	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories (2006), available at http://www.ipcc-nggip.iges.or.jp/public/2006gl/	Link last accessed on 09/02/2016	Others
11.	UNFCCC	UNFCCC webpage for the project: http://cdm.unfccc.int/Projects/DB/PJR%20CDM1353323353.49/view	Link last accessed on 15/03/2016	Others
12.	GOI	CO ₂ Baseline Database for Indian Power Sector, Central Electricity Authority. Version 06	Dated January 2011	Others
13.	UNFCCC	Tool to calculate the emission factor for an electricity system, Version 2.2.1	EB 63, Annex 19, dated 29/09/2011	Others
14.	UNFCCC	CDM-MR-FORM version 05.1	-	Other
15.	UNFCCC	Tool to determine project emissions from flaring gases containing methane, EB 28 Annex 13	-	Other
16.	Union instruments GmbH	Technical specifications for gas analyser INCA4001 series, Version 1.08	2015	Other
17.	IPCC	Emissions From Livestock And Manure Management, Volume 4 Chapter 10 of IPCC Guidelines	-	Other

		for National Greenhouse Gas Inventories (2006)		
18.	Union instruments GmbH	Calibration certificate for Gas analyser Serial No.94116	Dated 25/09/2012	PP
19.	Endress+Hauser	Calibration certificate for Gas Flow Meter Serial No. HAO 3CE02000	Dated 30/10/2012	PP
20.	Yadav Measurements Pvt. Ltd.	Calibration Certificate for check energy meter serial no. TNE59499	Dated 27/08/2012	PP
21.	Yadav Measurements Pvt. Ltd.	Calibration Certificate for main energy meter serial no. TNE59496	Dated 30/08/2012	PP
22.	Hi-Tech Calibration Services	Calibration certificate for thermocouple serial number 10-TC-80322, 10-TC-80323, 10-TC-80324, 10-TC-80325	Dated 05/06/2012	PP
23.	Government of Tamil Nadu	Certificate of calibration of weighbridge	Dated 27/08/2012	
24.	Thunaivan agencies	Diesel purchase invoice issued to IOT Mabagas	For entire monitoring period	PP
25.	IOT Mabagas Limited	Sample diesel stock inventory	For entire monitoring period	PP
26.	IOT Mabagas Limited	Farmer feedback document	For entire monitoring period	PP
27.	IOT Mabagas Limited	Monthly report of gross generation data	For entire monitoring period	PP
28.	IOT Mabagas Limited	Daily log book data for electricity export and import	For entire monitoring period	PP
29.	IOT Mabagas Limited	Invoice issued to Tamilnadu Generation & Distribution Corporation Limited by PP	For entire monitoring period	PP
30.	IOT Mabagas Limited	Monthly electricity export details	For entire monitoring period	PP
31.	IOT Mabagas Limited	Monthly electricity import details	For entire monitoring period	PP
32.	Tamil Nadu Generation and Distribution Corporation Limited	Export bill issued by Tamil Nadu Generation and Distribution Corporation Limited to PP monthly	For entire monitoring period	PP
33.	IOT Mabagas Limited	Invoice generated for export of fertilizer	For entire monitoring period	PP
34.	IOT Mabagas Limited	Weighbridge slips for exported fertilizer	For entire monitoring period	PP
35.	IOT Mabagas Limited	Weighbridge slips for import of waste	For entire monitoring period	PP
36.	Tamilnadu Generation And Distributon Corporation Limited	Commissioning certificate	Dated 24/12/2012	PP
37.	GOI	Power Purchase Agreement	Dated 05/12/2012	PP
38.	IOT Mabagas Limited	Tilling records	For entire monitoring period	PP
39.	GOI	CO2 Emission Database, Version 6.0	Dated March 2011	Others
40.	Tamil Nadu Agricultural University	Methane Emission Potential of Poultry Litter	Dated October 2011	Others

41.	UNFCCC	Tool to calculate baseline, project and/or leakage emissions from electricity consumption	Version 01	Others
42.	NABL	Directory of Accredited Testing Laboratories	Dated 01/02/2015	Others
43.	IOT Mabagas	Gas analyser log data and monthly records	For entire MP	PP
44.	IOT Mabagas	Half hourly and monthly gas flow readings for residual gas	For entire MP	PP
45.	Endress+Hauser	Calibration certificate for Gas Flow Meter Serial No. HAO 3CF02000	Dated 30/10/2012	PP
46.	IOT Mabagas	Half hourly and monthly gas flow readings for combusted biogas	For entire MP	PP
47.	IOT Mabagas	Half hourly and monthly records for flared biogas	For entire MP	PP
48.	IOT Mabagas	Diesel consumption records	For entire MP	PP
49.	IOT Mabagas	<ul style="list-style-type: none"> Plant records of half hourly reading of temperature in exhaust gas of flare Monthly generated reports based on half hourly data 	For entire MP	PP
50.	UNFCCC	Methodology AMS.III.D Version 18	-	Others
51.	Google	Maps.google.com	Last accessed on 13/04/2016	Others

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

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

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

Table 2. CL from this verification

CL ID	01	Section no.	E.1	Date : 27/10/2015
Description of CL				
The summary sheet (consolidated for all years) for emission reduction has not been provided for the entire monitoring period. Also, calculation of estimated emission reduction according to registered PDD has not been provided in ER sheet.				
Project participant response				Date : 12/01/2016
ER sheet is now updated , requested to refer new submission with all information incorporated in one excel sheet.				
Documentation provided by project participant				
Revised ER sheet				
DOE assessment				Date : 25/02/2016
The ER sheet has been revised to incorporate all the relevant data. Thus this CAR stands closed .				

Table 3. CAR from this verification

CAR ID	02	Section no.	E.1	Date : 27/10/2015
Description of CAR				
The following is not in compliance with the guidelines to fill the CDM-MR-FORM Version 5.0:				
<ol style="list-style-type: none"> 1. The font size used in the MR is not consistent within the document 2. In Section A.4 of MR Version 1, the UNFCCC web links to the applied methodologies has not been provided 3. Section A.1 does not contain relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.) 4. The "Value(s) of monitored parameter" has not been provided for any of the monitoring parameters in the MR. 				
Project participant response				Date : 12/01/2016
<ol style="list-style-type: none"> 1. Font Size is now consistent as per guidelines. 2. Weblinks are now updated. 3. Date of Commissioning i.e. 19 Dec 12, is now updated. 4. "Value(s) of monitored parameter" has now been provided in the revised MR. 				
Documentation provided by project participant				
MR Version 02 dated 12/01/2016				
DOE assessment				Date : 25/02/2016

1. Font size was found to be consistent. Thus this issue stands closed . 2. Links of applied methodologies was found to be reported. Thus this issue stands closed . 3. Relevant information has been added. Thus this issue stands closed . 4. Values of monitored parameter has not been given. Guidelines to fill CDM-MR-FORM Version 5.1 requires the final value to be reported in MR (where one final summation value can be given for e.g for parameter ID. 18.EGgross,y) and reference to ER sheet can be given only if necessary (like for parameters which has been reported daily). Thus this issue stands open .	
Project participant response	Date : 29/02/2016
• The value of parameters which are possible to mention in MR are mentioned and for rest parameters ER sheet is referred. The values are mentioned for parameters ID. 18./ EGgross,y, ID. 19./EGBL, ID. 20./ ECPJ,y, ID. 22./Qres waste,y, ID. 28./FC_{Diesel} . For rest parameters, it is not possible to derive single value for complete monitoring period, hence ER sheet is referred.	
Documentation provided by project participant	
Revised MR version 03 dated 29/02/2016	
DOE assessment	Date: 04/03/2016
4. the values for the above mentioned parameters has been provided, however, following issues in regard to parameters ID 19 and ID 20 recorded in ER sheet has been identified: a) daily readings has been used to quantify net electricity export for the duration of 27-dec-2012 to 01-jan-13 and 27-july-2015 to 31-july-15, however, monitoring plan does not mention any procedure for recording the readings daily. b) The value of 100640 units taken for net electricity export for duration of 01-jan-13 to 27-jan-13 is for the duration of 27-dec-12 to 27-Jan-13 as per export bill issued by Tamil Nadu Generation and Distribution Corporation Limited. c) Net electricity export value for duration of 27-feb-13 to 27-mar-13 has not been given in ER sheet. d) Electricity imported has been taken as the units of industrial consumption units@ Rs.9.50 per units given in High Tension bill for each month by Tamil Nadu Generation and Distribution Corporation Limited. However, units has also been consumed under reactive power charges units @Rs.0.10 per unit which has not been included in electricity import calculation. Thus this CAR remains open .	
Project participant response	Date : 08/03/2016
4. a) The billing cycle is starts from 27 th of one month to 27 th of next month , however the monitoring period starts from 1 st Jan 2013, thus to get the values from 1 st Jan 2013 to 27 th Jan 2013, the daily values from 27 th Dec 2012 to 31 st Dec 2012 need to subtract from the reading having billing cycle from 27 th Dec 2012 to 27 th Jan 2013. The monitoring frequency of registered monitoring plan is mentioned as monthly and same is followed for current monitoring period. The transparent description is mentioned in ER sheet by inserting comment for period 27 th Dec 2012 to 31 st Dec 2012. Also comment is inserted for total summation value in ER sheet. b) The value 100640 units is for 27 th Dec 2012 to 27 th Jan 2013, and duration is correctly mentioned in revised ER sheet now. c) The net electricity value for duration of 27-feb-13 to 27-mar-13 has been given in revised ER sheet d) Only active energy (KWh) need to be considered for ER calculations and the reactive energy (KVarh) can not be considered with active energy being their different units. The reactive energy charges during import are as per state electricity policy and these are used during invoicing. Hence consideration of active energy is appropriate as per registered monitoring plan.	
Documentation provided by project participant	
Revised MR version 04 dated 08/03/2016 along with revised ER sheet	
DOE assessment	Date: 09/03/2016
4. A) PP is requested to mention the source of daily reading as monitoring plan specifies that the parameter shall be monitored monthly. PP is also requested to provide a documentary evidence of the values used for daily readings. Thus this CAR is open . b) The value has been reported correctly. Thus this CAR is closed . c) The value was found to be included in revised ER sheet. Thus this CAR is closed . d) The approach as defined by PP is found to be acceptable. Thus this CAR is closed .	
Project participant response	Date : 10/03/2016

PP monitors daily reading of export and import from meter which is used for invoicing purpose. Thus these daily data is used to match with billing cycle duration and monitoring period duration. The documentary evidence for daily reading is submitted now.	
Documentation provided by project participant	
Revised MR version 05 dated 10/03/2016 along with revised ER sheet	
DOE assessment	Date: 14/03/2016
4. A) daily log book data mentioning export and import has been provided by PP. Thus this CAR stands closed .	

CAR ID	03	Section no.	E.1, E.3	Date : 27/10/2015
Description of CAR				
The following is not in compliance with the guidelines to fill the CDM-MR-FORM Version 5.0:				
<ol style="list-style-type: none"> 1. The type, accuracy class, serial number, calibration frequency, date of last calibration and validity has not been given for all the monitoring parameters. 2. Information in Section A.6 is not consistent with Appendix 1 of MR Version 1. Section A.6 mentions Carbonbay GmbH & Co. KG to be responsible person/entity, however Appendix also lists IOT Mabagas responsible entity. 3. Section B.1 of MR Version 1 fails to highlight the implementation status of the project activity. The start date of the functioning of the installed unit is also not given. Diagram to illustrate the installed technology, technical processed and procedures was found to be absent. 				
Project participant response				Date : 12/01/2016
<ol style="list-style-type: none"> 1. The same details are mentioned in ER calculation excel sheet. 2. Appendix 1 is now updated. IOT Mabagas is not responsible entity for completing the CDM-MR-FORM 3. The implementation status of project activity is mentioned in section B.1 of MR by mentioning commissioning date of project activity. The process scheme applied to project activity and schematic of project boundary is mentioned in revised MR now. 				
Documentation provided by project participant				
MR Version 02				
DOE assessment				Date: 25/02/2016
<ol style="list-style-type: none"> 1. Para 248 (b) of PS and guidelines to fill CDM-MR-FORM Version 5.1 requires type, accuracy class, serial number, calibration frequency, date of last calibration and validity to be given in the monitoring report along with each monitoring parameter. Thus this CAR remains open. 2. Corrected information has been added to revised MR. Thus this CAR stands closed. 3. Details of installed equipment (type, make, serial number, installation date etc.) has not been provided. Thus this CAR stands open. 				
Project participant response				Date : 29/02/2016
<ul style="list-style-type: none"> • The meter details for gross electricity generation and flare temperature has been submitted now. For rest parameters/equipments like energy meters for net electricity export and import, weigh bridge used for amount of waste, treated residue, Gas analyzer, flare and combusted gas flow meters are already submitted. • The technical information of project activity has been mentioned in MR. All equipments involved in the project activity are covered in MR. The para 244 a) of PS version 09 has been followed and the installed technology, technical process and equipments has been mentioned in revised MR as per registered PDD. 				
Documentation provided by project participant				
Revised MR version 03 dated 29/02/2016				
DOE assessment				Date: 04/03/2016

1. Para 248 (b) of PS and guidelines to fill CDM-MR-FORM Version 5.1 requires type, accuracy class, serial number, calibration frequency, date of last calibration and validity to be given in the monitoring report along with each monitoring parameter in MR. Thus this CAR remains open .	
3. The unique identification details of digester and gas engines has not been provided in MR. Thus this CAR remains open .	
Project participant response	Date : 08/03/2016
<ul style="list-style-type: none"> The appendix 1 is revised with mention of all details for the equipments used for monitoring parameters. The unique identification details for Digester and Gas engines are mentioned in revised MR now. 	
Documentation provided by project participant	
Revised MR version 04 dated 08/03/2016 along with revised ER sheet	
DOE assessment	Date: 09/03/2016
1. Section D.2 of MR does not contain the details of type, accuracy class, serial number, calibration frequency, date of last calibration and validity of each monitoring equipment under each monitored parameter. It is not in compliance with para 248 (b) of PS and guidelines to fill CDM-MR-FORM Version 5.1. Thus this CAR remains open . 2. Unique identification of digester and gas engines has been given in revised MR thus this CAR stands closed .	
Project participant response	Date : 10/03/2016
The reference of Appendix 1 is mentioned for the section "Monitoring Equipment" in relevant monitoring parameter for meter and calibration details.	
Documentation provided by project participant	
Revised MR version 05 dated 10/03/2016 along with revised ER sheet	
DOE assessment	Date: 14/03/2016
Relevant reference and information has been added to revised MR. thus this CAR stands closed .	

CAR ID	04	Section no.	E.3	Date : 27/10/2015
Description of CAR				
The accuracy class for the flow meter used to measure ID.25./ BG _{combusted,y} has been given as +0.1%, however as per industry standards, accuracy classes are in \pm fraction.				
Project participant response				Date : 12/01/2016
MR Ver 2 is now updated .				
Documentation provided by project participant				
Revised MR version 02				
DOE assessment				Date: 25/02/3016
Information has been revised in MR version 02 thus this CAR stands closed .				

CAR ID	05	Section no.	E.3	Date : 27/10/2015
Description of CL				
The monitoring system defined in Section C of MR Version 1 is not consistent with Section B.7.2 (Description of monitoring plan) of the registered PDD in terms of procedures followed for ensuring the QA/QC of the monitored parameters. This is not inline with the paragraph 389 of VVS Version 9.				
Project participant response				Date : 12/01/2016
The same has now been corrected in the revised MR.				
Documentation provided by project participant				
Revised MR version 02				
DOE assessment				Date: 25/02/3016
Emergency and calibration procedures for monitoring system has not been added to monitoring plan which is not in compliance with para 246 of PS Version 09. Thus this CAR remains open .				
Project participant response				Date : 29/02/2016
The calibration procedure and emergency procedure has been added in the revised MR.				
Documentation provided by project participant				
version 03 dated 29/02/2016				
DOE assessment				Date: 04/03/2016
The emergency and calibration procedures has been added in compliance with para 246 of PS Version 09. Thus this CAR is closed .				

CAR ID	06	Section no.	E.6.1	Date	: 27/10/2015
Description of CL					
The value used for $EF_{grid,CM,y}$ and $EF_{grid,OM,y}$ is not consistent with CEA database Version 06, which is not inline to the VVS Version 9 para 401, 402(d) and 402 (e).					
Project participant response					Date
The values used for combined margin and Operating margin are consistent with CEA database version 6. The value of combined margin grid emission Factor is 0.865 tCO ₂ /MWh correctly calculated in registered PDD.					: 12/01/2016
Documentation provided by project participant					
Combined Margin Emission Factor calculation Excel sheet based on CEA CO ₂ baseline database Version 6					
DOE assessment					Date
The values were found to be consistent thus this CAR stands closed .					: 25/02/2016

CAR ID	07	Section no.	E.6.2	Date	: 27/10/2015
Description of CL					
The value used for $EG_{gross,y}$ & $EG_{BL,y}$ & $EC_{PJ,y}$ in the monitoring report (xls.) are not consistent with the plant records (Invoices, JMR) available at site as source of information.					
Project participant response					Date
It has now been corrected.					: 12/01/2016
Documentation provided by project participant					
Gross generation.xls Revised ER sheet					
DOE assessment					Date
The value of gross generation for 21/08/2014 in Gross generation.xls has been written as 88804, however records mention a value of 22204. Thus this CAR remains open .					: 25/02/2016
Project participant response					Date
This was typo error as digit 8 was considered instead of digit 2 due to hand writing in log books. The same is corrected now. The value of parameter The gross electricity generated by the project activity is undated accordingly.					: 29/02/2016
Documentation provided by project participant					
Revised MR version 3 dated 29/02/2016 along with revised ER spreadsheet					
DOE assessment					Date
The values are now consistent. Thus this CAR is closed .					: 04/03/2016

CAR ID	08	Section no.	E.6.2	Date	: 27/10/2015
Description of CL					
The values for the parameters WCH4 has not been reported in the MR. The values requires to be reported as per registered PDD (ID23)					
Project participant response					Date
The same has now been incorporated in the revised MR.					: 12/01/2016
Documentation provided by project participant					
Monitoring Report Version 02					
DOE assessment					Date
The parameter has been added as per the registered PDD. Thus this CAR stands closed .					: 25/02/2016

CAR ID	09	Section no.	E.6.2	Date	: 27/10/2015
Description of CL					
The values for the parameters ID.23./ wCH4 & ID. 24./FVRG,h & ID.25./ BGcombusted,y & ID.26./ BGflared,y & ID. 27./ Frequency of tilling has not been reported in the MR. These two parameter required to be monitored as per PDD.					
Project participant response					Date
The same has now been incorporated in the revised MR.					: 12/01/2016
Documentation provided by project participant					
Revised Monitoring Report Version 02					
DOE assessment					Date
					: 25/02/2016

The parameter has been monitored and values has been incorporated in revised ER sheet. Thus this CAR stands **closed**.

CAR ID	10	Section no.	E.6.2	Date : 27/10/2015
Description of CL				
<ol style="list-style-type: none"> For some days the temperature of the flare has not been recorded in the MR (xls.) however the gas flow is evident for example 22/01/2013 (hours 15-16).Also for some days the temperature has been recorded exceptionally low for example 53 degree on 08/02/2013 & , 42.36 on 24/05/2013 & 42.99 24/05/2013. The values of the kilometer traveled by the trucks (ID. 31./DAFw,l) for all types of waste for example sago water has not been reported in the MR. 				
Project participant response				Date : 12/01/2016
<ol style="list-style-type: none"> The was typo error and corrected now. The same has now been incorporated in the revised MR. 				
Documentation provided by project participant				
Revised ER sheet				
DOE assessment				Date: 25/02/2015
<ol style="list-style-type: none"> The explanation for extremely low temperatures used for flaring has not been provide. Thus this CAR stays open. The value for parameter ID 31 is taken as 25 km. however, ER sheet mentions that waste is also coming from a distance of almost 130-150 km (like press mud) and compost is travelling 338 km. Thus PP is required to elaborate how 25 km is a conservative value. This CAR stands open. 				
Project participant response				Date : 29/02/2016
<ol style="list-style-type: none"> This was error and revised ER sheet has corrected the same. The text in MR has been revised. In actual , the transportation distance for each waste is determined separately and same is used for calculation of Project Emission due to transportation. 				
Documentation provided by project participant				
ER spreadsheet				
DOE assessment				Date: 04/03/2016
<ol style="list-style-type: none"> As per the data recorded in ER sheet, temperatures has reached a lowest of 327.5 degrees Celsius. However as per the applied tool, if temperature of flare is below 500 degree Celcius then flare efficiency has to be considered 0. However, ER sheet takes efficiency of 50%. Thus this CAR stands open. For quantification of incremental distance an average of sampled values has been taken. PP is requested to justify the conservativeness of the averaged value. Thus this CAR remains open. 				
Project participant response				Date : 08/03/2016
<ol style="list-style-type: none"> The flare emission calculation formula is revised with condition that if temp is less than 500 Deg C , then flare efficiency is zero and if flare temp is above 500 Deg C, then 50% flare efficiency is considered for calculations. The maximum distance from sampled values are used for calculation of project emissions due to transportations for all kinds of waste. The consideration of maximum distance is conservative. 				
Documentation provided by project participant				
Revised MR version 04 dated 08/03/2016 along with revised ER sheet				
DOE assessment				Date: 09/03/2016
<ol style="list-style-type: none"> The approach used by PP in revised ER sheet is found to be conservative thus this CAR stands closed. As per registered PDD, description of ID 31 requires a statistically sound sampling method. Thus PP is required to justify how the sampling method is statistically sound. For example for chicken litter out of a total of 1489 truck movements, sample size of 30 has been taken for year 2013. Thus this CAR stands open. 				
Project participant response				Date : 10/03/2016
<ol style="list-style-type: none"> Please refer registered PDD (page 87 of 90) , sample size is mentioned against the population size say example for DAF poultry , N (population) is 4900 truck movements and sample size is chosen as 30 truck movements, thus if there are 1489 truck movements in actual case for year 2013, then consideration of same sample size for less population is more than requirement. The same is applicable for other types of waste also. In fact, if we see total population for complete monitoring period and sample size, then sample size is more than mentioned in registered PDD. Average distance from sample is considered for emission calculations along with elaboration of meeting of precision of sample size inline to registered PDD. Thus sample selected is statistically sound. 				

Documentation provided by project participant	
Revised MR version 05 dated 10/03/2016 along with revised ER sheet	
DOE assessment	Date: 14/03/2016
2. The justification provided by PP is conservative and agreeable according to assessment team. Thus this CAR stands closed .	

CAR ID	11	Section no.	E.6.2	Date : 27/10/2015
Description of CL				
The values for ID.24/FV _{RGH} have not been reported in the MR (xls).				
Project participant response				Date : 12/01/2016
The same has now been incorporated in the revised MR.				
Documentation provided by project participant				
DOE assessment				Date: 25/02/2015
The value for the parameter has been recorded in ER sheet. Thus this CAR stands closed .				

CAR ID	12	Section no.	E.8.4	Date : 27/10/2015
Description of CL				
The ER calculation has not been compared and reported inline with the equation 19 of the PDD.				
Project participant response				Date : 12/01/2016
The same has now been incorporated in the revised MR.				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date: 25/02/2015
Calculation inline to equation 19 could not be found in revised MR. thus this CAR stands open .				
Project participant response				Date : 29/02/2016
The registered PDD mentioned that In every case BE _y ,exp _{ost} would be more conservative. However as per equation 19 of registered PDD, ER are compared and minimum value is considered. The comparison approach is mentioned in MR and ER spreadsheet accordingly.				
Documentation provided by project participant				
Revised MR version 03 dated 29/02/2016				
DOE assessment				Date:
The required information has been given in revised MR, thus this CAR stands closed .				

CAR ID	13	Section no.	E.8.1, E.6.1	Date : 10/04/2016
Description of CL				
<p>1. Baseline emission is calculated from total exported electricity and imported electricity is considered as project emission and subtracted from baseline emission. However, AMS.I.D requires calculation of net electricity exported (export-import) for calculation of baseline emission. Kindly justify how the project is in compliance with AMS.I.D.</p> <p>2. Parameter "UFb" described on page 36 of the MR has not been indicated in section D.1</p>				
Project participant response				Date : 11/04/2016
<p>1. The project activity involves two methodologies, AMS I.D and AMS IIIA.O. The net electricity supplied to grid involves export and import of electricity. The baseline emissions due to electricity export to grid is calculated as per AMS I.D methodology. However the import of electricity is considered for project emissions as per AMS IIIA.O methodology. , which is considered as conservative due to additional 20% factor of transmission and distribution losses. These calculations are as per registered PDD and conservative.</p> <p>2. The UFb is the model correction factor to account for model uncertainties and this parameter is constant ex ante in registered PDD and taken from Reference: FCCC/SBSTA/2003/10/Add.2, page 25. As per registered PDD, the methodology AMS III A.O refers methodology AMS III.D version 18 and AMS III.D version 18 mentioned UFb parameter as 0.94. Thus this parameter is taken as per AMS III.D methodology version 18 and is default value for the project activity. For better transparency, this parameter is included in section D.1 of Revised MR.</p>				

Documentation provided by project participant	
Revised MR version 6 dated 11/04/2016 along with ER sheet	
DOE assessment	Date: 13/04/2016
<p>1. The approach for calculating baseline emission from electricity export has been found to be conservative as per explanation given by PP. thus this has been accepted by assessment team and CAR stands closed.</p> <p>2. The parameter used has now been incorporated into ex-ante parameter in revised MR. the used value has been validated thus accepted by assessment team and CAR stands closed.</p>	

Table 4. FAR from this verification

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

There is no FAR from this verification.

History of the document						
Version	Date	Nature of Revision	Prepared by		Reviewed by	
			Name	Date	Name	Date
2.0	16/10/2015	In line to UN reports	Abhishek Mahawar	16/10/2015	Ashok Gautam	16/10/2015
1.0	10/11/2014	Editorial	Abhishek Mahawar	10/12/2014	Ashok Gautam	11/11/2014
0	01/07/2013	Initial adoption	Abhishek Mahawar	28/06/2013	Kaviraj Singh	01/07/2013