Verification and certification report form for CDM project activities

(Version 02.1)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Natural Gas based grid connected power project at Peddapuram, A.P. by Gautami Power Limited (UNFCCC Ref. No. 4828[1])
Version number of the verification and certification report	03
Completion date of the verification and certification report	12/11/2018
Monitoring period number and duration of this monitoring period	02 (11/03/2012 to 10/02/2018; inclusive of both days)
Version number of the monitoring report to which this report applies	03
Crediting period of the project activity corresponding to this monitoring period	09/09/2011 – 08/09/2021
Project participants	M/s GVK Gautami Power Limited
Host Party	India
Applied methodologies and standardized baselines	AM0029 - Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas, ver. 3
Mandatory sectoral scopes linked to the applied methodologies	1: Energy industries (renewable - / non-renewable sources)
Conditional sectoral scope(s) linked to the applied methodologies	NA
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	7,664,854 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	693,246 tCO_2e
Name and UNFCCC reference number of the DOE	LGAI Technological Center, S.A. (Applus+ Certification). UNFCCC reference number: E-0032

[1] http://cdm.unfccc.int/Projects/DB/SIRIM1305857412.14/view

Name, position and signature of the approver of the verification and certification report	Juan Sendín Caballero, Applus+ Certification BU Managing Director. 

SECTION A. Executive summary

The purpose of the project activity is construction and operation of a new, grid connected 469 MW natural gas fired Combined Cycle Power Plant (CCPP). Under the project activity, a new independent grid connected power plant is constructed and operated. The electricity generated is supplied to the southern grid under a Power Purchase Agreement between Project Participant and APSEB. The project activity will help in reducing the power deficit and carbon intensity of the southern grid. The project activity is less emission intensive as compared to the common coal-based power generation and average fuel mix in the national grid. The project activity has been installed by GVK Gautami Power Ltd. (GPL)[2] at Industrial Development Area, Peddapuram, near Samalkot in East Godavari district, Andhra Pradesh, India.

The power generation components of the project activity comprise of two gas turbine generators (GTG), two heat recovery steam generators (HRSG) and one steam turbine generator (STG). The turbine unit has annular type combustors. The combustion of air fuel mixture takes place in the combustors. The major components located in the auxiliary block are lubricating oil system with lube oil reservoirs and lube oil coolers.

The generators (210 MVA) are coupled to gas turbines and steam turbine. They deliver the power at 15.75 kV with 0.8 PF; 3 phase; 50 Hz at site ambient conditions of 29ºC and a relative humidity of 70%. The power generated at 15.75 kV is stepped-up to 400kV through step-up transformers. The step-up transformers are connected to project switchyard by overhead transmission lines. The 400kV project switchyard is connected to APTRANSCO's 400kV sub-station.

The project activity commenced Operation (COD achieved) on 05/06/2009.

The total emission reductions for the current monitoring period is 693,246 tCO_2e.

The project location is described below along with the latitude and longitude:

The 469 MW combined cycle power plant is located at Industrial Development Area, Samalkot, near the port town Kakinada, Andhra Pradesh. The site is 15 km from the sea port at Kakinada and 3 km from the Samalkot railway station. The geographical coordinates of the Samalkot are 17º03'03" N and 82º07'04" E.

The above details are checked by the assessment team during the verification site visit and latitude and longitude are also checked via google earth and GPS meters during the site visit. The detail also forms the part of Monitoring report and thus acceptable to the assessment team

Brief description of the installed technology and equipment's:

S.N.	Equipment	Specifications
1	Gas turbine (GT)	Two (2) nos. Alstom Power make (Type- GT13E2) heavy duty industrial gas turbines equipped with the lean premix dry low NOx EV burners; holds 21-stages compressor and 5-stage turbine blades; **Capacity-** 2 x 152.438 MW at site conditions of 29 deg C, 70% RH and 50Hz frequency
2	Heat recovery steam generators (HRSG)	**Make -** ALSTOM Power, Triple Pressure **Capacity:** HP/ IP/ LP **Flow:** 56.95/ 11.1/ 9.7 kg/s **Temp:** 508.3/ 506/ 151.2 deg C **Pressure:** 96.35/ 24.6/ 4.8 bar
3	Steam turbine generator (STG)	ALSTOM Power, Triple Pressure Capacity- 164.235MW at site conditions of 29 deg C, 70% RH and 50Hz frequency

1. Verification Scope: The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification is based on the submitted monitoring report, the validated and registered PDD as well as its validation report, the applied

[2] GVK Gautami Power Ltd. is the new name of PP as per order dt. 08/09/2009 (letter from 'Registrar of Companies, Andhra Pradesh' submitted to DOE)

monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance. Based on the requirements in the VVS version 01 for the project activity, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion. The verification considers both quantitative and qualitative information on emission reductions. The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

2. Methodology:

LGAI Technological Center, S.A. (Applus+ Certification) – Hereinafter referred as Applus+ Certification- approach to the verification is a two-stage process.

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

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

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

3. Assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center, S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center, S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT)
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect
Dr. Atul Takarkhede	LA/TE	YES	YES	NA
Mr. Denny Xue	TR	YES	YES	NA

The curriculum vitae of the DOE's Verification team members are provided in Appendix 2 of this report.

3. Review of Documentation:

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

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

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

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

As a part of the verification, the on-site inspection has been performed by the assessment team.
The objective of the on-site assessment is to:

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

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

5. Quality of Evidences

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

6. Reporting of Findings

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

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

a) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
b) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
c) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

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

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

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

7. Internal Quality Control

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

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Lead Auditor/ Technical expert	OR	Takarkhede	Atul	True Quality Certifications private Limited-Outsourced entity	Yes	Yes	Yes	Yes

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	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Sendin Caballero	Juan	Applus+ Certification

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.	No risk	Nil	Not applicable	Complete verification of all the values indicated in the emission reduction spreadsheet with documents such as Gas tickets/ JMR sheets/invoices etc. All the value in emission reduction sheet is checked as per the source of data presented in the registered PDD for all the monitoring parameters. All the source of the monitoring parameters is checked from the original JMR sheets (For electricity), Gas tickets (gas flow and NCV),

				Invoices (for cross check of net electricity) etc. Assessment team undergone physical inspection of the complete power plant including the sub-station (Output electricity) and Gas flow (input for power plant.). The complete process is checked and hence assessment team is of the opinion that the power project is implemented and operated as mentioned in the registered PDD.

C.2. Consideration of materiality in conducting the verification

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

SECTION D. Means of verification

D.1. Desk/document review

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

The initial MR Version 01 submitted by the project participant and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step involved the identification of corrective action requests, clarification requests and Forward action request (CAR, CL and FAR) which are presented in Appendix 4 of this report. As a result of these findings, the MR is revised to MR Version 03. A complete list of all documents and records reviewed are attached in Appendix 03 of this report.

D.2. On-site inspection

Duration of on-site inspection: 22/06/2018 - 23/06/2018				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	The verification team conducted visits to the project site on 22/06/2018 - 23/06/2018 to confirm the information and to resolve issues identified in the document review. An on-site assessment was conducted as a part of verification activity and involved: 1) an assessment of the implementation and operation of the CDM project activity as per the registered PDD 2) a review of information flows for generating, aggregating and reporting of the monitoring parameters 3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan 4) a cross-check between information provided in the MR and data from other sources 5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology 6) a review of calculations and assumptions made in determining the GHG data and ERs, and 7) an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters	GVK Gautami Power Ltd., Peddapuram, East Godavari district, Andhra Pradesh, India	22/06/2018 - 23/06/2018	Dr. Atul Takarkhede

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Krishnan	Mr. Ramanathan	PP representative	22/06/2018 - 23/06/2018	As mentioned above in section D.2 of this report	Dr. Atul Takarkhede

D.4. Sampling approach

No sampling is used as the verification team has visited power plant site along with the substations. The verification team has reviewed all the documents like commissioning certificates, JMR sheets, Gas tickets. Invoices, PPA etc.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	00	02	00
Compliance of the project implementation and operation with the registered PDD	00	00	00
Post-registration changes	00	00	00
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	00	00	00
Compliance of monitoring activities with the registered monitoring plan	01	01	00
Compliance with the calibration frequency requirements for measuring instruments	00	00	00
Assessment of data and calculation of emission reductions or net removals	00	00	00
Assessment of reported sustainable development co-benefits	00	00	00
Global stakeholder consultation	00	00	00
Others (please specify) – *operational period*	00	01	00
Total	**01**	**04**	**00**

SECTION E. Verification findings

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

Means of verification	The verification team has determined whether the monitoring report was completed using the valid version of the applicable monitoring report form. The verification team has checked whether all the sections of the monitoring report follows the guidelines provided in the template.
Findings	CAR 01 and CAR 02 were raised during the verification process and closed successfully. Please refer Appendix 4 for the complete closure of the CAR
Conclusion	PP has used the version 06.0 of the MR form which is the current and active version. The monitoring report has been prepared as per the instructions provided in the template. DOE has made the version 01 of the monitoring report covering the monitoring period from 11/03/2012 to 10/02/2018 (Inclusive of both days) publicly available through its dedicated interface on the UNFCCC CDM website before undertaking the site visit for the verification on 22/06/2018 - 23/06/2018. The verification team has concluded that the monitoring report was completed using the valid version of the applicable monitoring report form and is followed the guidelines contained in the template.

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

This is 2nd periodic verification. No FAR raised during the 1st verification and Validation of the project activity.

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

Means of verification	The verification team determined the conformity of the actual implemented project activity and its operation with the registered project design document. DOE has, by means of a desk review and an on-site visit, assessed whether all physical features of the proposed CDM project activity proposed in the registered PDD are in place, and that the project participants have operated the CDM project activity as per the registered PDD
Findings	CL 01 was raised during the verification process and closed successfully. Please refer Appendix 4 for the complete closure of the CL.
Conclusion	The verification team has reviewed the commissioning certificates to conclude that the capacity of the project is same as mentioned in the registered PDD. Latitude and longitude are also checked via google earth and GPS meters during the site

	visit and found correct. The capacity does not change after the registration of the project activity as confirmed by the assessment team during verification site visit. The plant undergone scheduled maintenance as per the manufacturer's specifications and no unforeseen incident observed by the assessment team during the monitoring period. Also power plant was not operated for most of times due to non-availability of gas from gas supplier. The details are checked by the assessment team from the plant log records and found correct. Based on the documentary evidence of commissioning certificates and physical verification DOE concludes that the project was implemented as per the registered PDD except non-operational period of the project activity due to lack of regular supply of natural gas.

E.4. Post-registration changes

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

Not applicable for present Monitoring period

E.4.2. Corrections

Not applicable for present Monitoring period

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

Not applicable for present Monitoring period

E.4.4. Inclusion of a monitoring plan

Not applicable for present Monitoring period

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

Not applicable for present Monitoring period. The project activity was requested the Permanent changes from the monitoring plan earlier and same is approved on 17/10/2013. Same is available on UNFCCC website; https://cdm.unfccc.int/PRCContainer/DB/prcp491309224/view

E.4.6. Changes to the project design

Not applicable for present Monitoring period

E.4.7. Changes specific to afforestation and reforestation project activities

Not applicable for present Monitoring period

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

Means of verification	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology AM0029 version 3.0 including applicable tools.
Findings	CAR 03 and CAR 04 were raised during the verification process and closed successfully. Please refer Appendix 4 for the complete closure of the CAR
Conclusion	The verification team is able to confirm that the monitoring plan contained in the registered PDD is in accordance with the approved methodology applied by the project activity, i.e. AM0029 version 3.0 and its applicable tools. The same is followed onsite and thus assessment team confirms that project activity comply with the requirement of Approved methodology and registered PDD.

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	The assessment team checked the registered PDD to confirm the ex-ante fixed parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-ante values used for emission reduction calculation.
Findings	No findings were raised regarding the same.
Conclusion	The parameters $EF_{NG,\ Upstream,CH4}$ and $EF_{CO2,\ Upstream,LNG}$ are ex-ante parameters used for ER calculations and the same are mentioned in section D.1 of MR. The values of these parameters are found to be appropriate and consistent with registered PDD. The below parameters are not useful for calculations of emission reductions and were used for ex-ante estimation of emission reductions during validation stage, hence not mentioned in above section D.1 of MR (Though these parameters are mentioned in registered PDD) • The Build Margin emission factor of Southern grid ($EF_{BM\ ,\ y}$), • The Operating Margin emission factor of Southern grid ($EF_{OM\ ,\ y}$), • Emission Factor of Coal (EF_{Coal}), • Oxidation Factor of Coal ($Oxid_{Coal}$) • The Emission factor of the Southern grid ($EF_{electricity.y}$), • Net Calorific Value of Coal (NCV_{Coal}), • The energy efficiency of technology in the most likely baseline scenario (ηBL) The below parameter is an ex post parameter and will be part of monitoring parameter (section D.2 of MR), hence not mentioned in above section D.1of MR. (Though these parameters are mentioned in registered PDD) • Emission Factor of Natural Gas ($EF_{CO2,NG,y}$) • Oxidation Factor of NG ($Oxid_{NG}$) • Emission factor for upstream fugitive methane emissions occurring in the absence of the project activity in terms of ton of methane per MWh ($EF_{BL,\ Upstream,CH4}$) The same is acceptable to the assessment team.

E.6.2. Data and parameters monitored

Means of verification	The assessment team checked the registered PDD to confirm the ex-post parameter mentioned in the current monitoring report. Assessment team also interviewed the personal onsite to check further regarding the ex-post parameter monitoring and confirms that the same is in line with the registered PDD. AM0029 Version 3.0 which was the applied methodology during the registration of the project is also checked to ensure that monitoring parameter as mentioned in the registered PDD and current MR are in compliance with the methodology.
Findings	No findings were raised regarding the same.
Conclusion	As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored: 1. **$EG_{PJ,y}$** : Electricity exported to the grid by the project activity in year y. The data represents the net electricity export from the project activity power plant measured by the tariff Meters. These four meters (one Main & one Check meter on each of the two lines - Line 1 & Line 2) are 3 phase 4 wire meters and of an accuracy of 0.2s class. These meters read both export and import values. The net export was calculated from readings of these meters (total export – total import).The total net export from power plant was calculated by summation of the readings measured by the tariff meters of Line-1 and Line-2.The monthly Joint meter reading (JMR) was taken by representatives of PP & APTRANSCO on 10th of every month. Based on this JMR the PP raised invoices to APTRANSO for electricity sold. During current monitoring period, the main

meters of both the lines (Line 1 & Line 2) were replaced by pre-calibrated meters. The JMR values and Invoice values are consistent and same are used for ER calculations.
Thus the verification team was able to conclude that the value reported in the Monitoring report is appropriate. The monitoring plan as mentioned in the registered PDD is followed onsite for the present parameter and thus assessment team concludes that the parameter measurement is as per the registered PDD.

2. **$EF_{BL,CO2,y}$**: The Build Margin emission factor of Southern grid. This is calculated parameter as per monitoring methodology AM0029, version 03. Based on CO2 Baseline database for the Indian power sector, version 13 (latest available) The Option A – Build Margin found lowest emission factor among three options given by the baseline methodology. As per latest CEA database, the Build Margin of respective year is considered data of that year. Thus for year 2011-12 and 2012-13 period, the Build Margin of 2011-12 and 2012-13 is considered. For period 2013-2018 period, the lower emission factor of year 2016-17 (among years 2013-14, 2014-15, 2015-16 and 2016-17) is considered as conservative approach. The database is Government of India's official publication based on the "Tool to calculate the emission factor for an electricity system". Hence, found most authentic. The verification team has checked the calculations and found to be correct and hence accepted the value of emissions reductions.

3. **FC_{NG}**: Quantity of NG consumed in the project activity. The source for this parameter is Gas supplier's fuel flow meter reading at project boundary given as fortnightly joint ticket. GAIL has a gas supply terminal near project plant, included in the project boundary, where gas quantity is metered and displayed in SCM i.e. standard cubic meters (at standard temperature and pressure). Presently there are two gas metering lines (line A and line B) and both have separate metering (flow meters). At any time, any or both lines can be operated. If both lines operate on any day, the sum of these two line meters will be used to get total gas consumption. The gas quantity measured by gas supplier meter have higher reading than PP side check meter, thus gas supplier meter data is considered for ER calculations.
   Assessment team checked the same and found that the flow measurement is as per the registered PDD. The monitoring plan as mentioned in the registered PDD is followed onsite for the present parameter and thus assessment team concludes that the parameter measurement is as per the registered PDD.
4. **FC_{LNG}**: Quantity of LNG consumed in the project activity. The LNG is also received in gas form at the project boundary as regasification happens at any of the LNG terminals in the country. The source for this parameter is Gas supplier's fuel flow meter reading at project boundary given as fortnightly joint ticket. GAIL has a gas supply terminal near project plant, included in the project boundary, where gas quantity is metered and displayed in SCM i.e. standard cubic meters (at standard temperature and pressure). Presently there are two gas metering lines (line A and line B) and both have separate metering (flow meters). At any time, any or both lines can be operated. If both lines operate on any day, the sum of these two line meters were used to get total gas consumption. The gas quantity measured by gas supplier meter have higher reading than PP side check meter, thus gas supplier meter data is considered for ER calculations. Assessment team checked the same and found that the flow measurement is as per the registered PDD. The monitoring plan as mentioned in the registered PDD is followed onsite for the present parameter and thus assessment team concludes that the parameter measurement is as per the registered PDD.

5. **NCV_{NG}**: Net Calorific Value of Natural Gas. The Supplier provides the value of the NCV in the daily/ fortnightly joint ticket given to the project proponent. The NCV is measured by the Gas chromatograph that would be installed by GAIL at their terminal. Assessment team checked the same and found that the NCV measurement is as per the registered PDD. The monitoring plan as mentioned in the registered PDD is followed onsite for the present parameter and thus assessment team concludes that the parameter measurement is as per the

	registered PDD. 6. **NCV_{LNG}:** Net Calorific Value of LNG. The Supplier provides the value of the NCV in the daily/ fortnightly joint ticket given to the project proponent. The NCV is measured by the Gas chromatogram installed by GAIL at their terminal. Assessment team checked the same and found that the NCV measurement is as per the registered PDD. The monitoring plan as mentioned in the registered PDD is followed onsite for the present parameter and thus assessment team concludes that the parameter measurement is as per the registered PDD. 7. **$COEF_{f,y}$**: Calculation of CO_2 Emission Co-efficient of natural gas. **$EF_{CO2,NG,y}$** and **$Oxid_{NG}$** are monitored during the monitoring period. Hence, Cross checking for these parameters are separately described in the respective tables. The verification team noted that the calculation of CO2 emission coefficient, $COEF_{NG}$ has been correctly done using the formulae in the sheet "Emission reduction". Thus the verification team was able to conclude that the value reported in the Monitoring report is appropriate. 8. **$Oxid_{NG}$**: Oxidation Factor of NG. The verification team has accepted this value as it has been sourced from the latest IPCC source available during current monitoring period. Thus the verification team was able to conclude that the value reported in the Monitoring report is appropriate. 9. **$EF_{BL,\ upstream,\ CH4}$**: Emission factor for upstream fugitive methane emissions occurring in the absence of the project activity. The calculation requires following parameters: 1) $FF_{j,k}$: Quantity of fuel type combusted in power plant included in j build margin 2) $EF_{k,\ upstream\ ,\ CH4}$: Taken from Table 2 of AM0029, version 03) EG_j : Electricity generation in the plant included in the build j margin. For Year 2011-12 and 2012-12, the respective years $EF_{bl,upstream,ch4}$ factor is calculated. However for year 2013-18, the conservative build Margin emission factor is for year 2016-17, hence the $EF_{bl,upstream,ch4}$ factor is calculated for year 2016-17 as consistent approach. The data source for these parameters is computed consistently with the Build Margin emission factor based on latest available information from Central Electricity Authority, Ministry of Power, Government of India, Version 13 - this being a government published data, found most authentic, hence, found appropriate and correct and accepted by the verification team. 10. **$EF_{CO2,NG,y}$**: Emission factor of natural gas. The value of the emission factor of natural gas has been sourced from the latest version of IPCC Guidelines available during the current monitoring period and hence accepted by the verification team having checked the correctness of value with the source of information. Thus the verification team was able to conclude that the value reported in the Monitoring report is appropriate and consistent with registered PDD. 11. **PE_y**: Project emissions due to combustion of fuel. The parameter is calculated as below: $PE_y = \sum_f FC_{f,y} \times COEF_{f,y}$ The verification team noted that the calculation of Project emission due to combustion of fuel, PE_y has been correctly done using the above formulae in the sheet "Emission reduction". Thus, the verification team was able to conclude that the value reported in the Monitoring report is appropriate. The verification team has checked the calculations and found to be correct and hence accepted the value of project emissions.

E.6.3. Implementation of sampling plan

Means of verification	The verification assessed whether the compliance of the sampling efforts and surveys with the registered sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities" if PP had applied a sampling approach to determine data and parameters monitored.

Findings	There is no CAR/CL raised in this section.
Conclusion	PP did not apply sampling plan to determine data and parameters monitored during this monitoring period. The verification team has checked all the documents such as JMR/Invoices/Gas Join Tickets/ PPA/NCV etc. and hence sampling plan was not required. The verification team hereby confirms that it checked all the documents

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

Means of verification	The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the PP at a frequency specified in the registered monitoring plan
Findings	There is no CAR/CL raised in this section.
Conclusion	Assessment team checked the calibration reports of all the monitoring parameters and has the following observation: **Calibration details of the Energy meters:** Assessment team confirms that the energy meters installed at the substation are of accuracy class of 0.2s and are calibrated as per the national standards followed by the electricity board, but they are calibrated at least once in a year. The calibration of the energy meters installed at HT side of the transformer were carried out by Meter and testing division of the electricity board which is 3rd party organization and the same is acceptable to the assessment team. The Meter and testing division of the electricity board is accredited by Indian national laboratory i.e. NABL to carry out the testing of the meters which is as per the national regulation and thus traceability of the Calibration is also confirmed by the assessment team. No delay in calibration observed for the current monitoring period. The detail Calibration is as follows:

Pre-calibrated Meter Installed on	From 11/03/2012 onwards, 11/02/2013, 17/01/2014, 19/02/2015, 08/02/2016, 30/01/2017		05/07/2012, 19/07/2013, 19/08/2014, 09/07/2015, 15/07/2016, 31/08/2017		No change in Check meter involved for current monitoring period	
Description	**First set of Main Meters**		**Second set of Main Meters**		**Check Meters**	
Meter Location	Line 1 Main Meter	Line 2 Main Meter	Line 1 Main Meter	Line 2 Main Meter	Line 1 Check Meter	Line 2 Check Meter
Meter Make	Elster Alpha	Elster Alpha	Elster Alpha	Elster Alpha	Elster Alpha	Elster Alpha
Model Number	A1860RALNC	A1860RALNC	A1860RALNC	A1860RALNC	-	-
Meter Sl. No	7615234	9451716	7615227	9451715	7659724	7659726
Calibration Dates	18/10/2011	18/10/2011	08/04/2011	08/04/2011	As per registered PDD, Check meters will be calibrated by APTransco/ APDISCOMs as per their procedures (and are not part of this monitoring). PP do not have details of these check meters calibrations and hence not mentioned here.	
	04/02/2013	04/02/2013	30/05/2012	30/05/2012		
	18/11/2013	18/11/2013	10/06/2013	10/06/2013		
	16/12/2014	16/12/2014	02/06/2014	02/06/2014		
	15/12/2015	14/12/2015	26/05/2015	26/05/2015		
	23/12/2016	23/12/2016	24/05/2016	24/05/2016		
	28/12/2017[3]	28/12/2017	14/06/2017	14/06/2017		

The meters were pre calibrated before installation and there is no delay in calibration observed as per annual calibration frequency.

Calibration details of Gas flow Meter:
As per registered PDD, Daniel make 4-path gas flow meter based on ultrasound and does not require calibration. However the temperature transmitter (TT) and pressure transmitter (PT) associated with gas flow meter will be calibrated jointly by gas supplier and PP quarterly.

[3] The line 1 and line 2 main meters are installed alternately, and these meters were calibrated prior to installation date. Thus meters of first set were replaced by pre-calibrated meters of second set prior to calibration validity of first set of meters. Similarly, meters of second set were replaced by pre-calibrated meter of first set prior to calibration validity of second set of meters. Hence there is no any delay in calibration observed for main meters.

	Pressure Transmitter calibrations	Temperature Transmitter calibrations
Make	Rosemount	YOKOGAWA
Accuracy	0.075%	0.2%
Model	2088G3S22A1145ED04	YTA110
Sr. No	7994251 and 7994249	C2E301618 and C2E202984
Calibration Dates	08/12/2012	08/12/2012
	13/12/2013	13/12/2013
	16/12/2014	16/12/2014
	16/12/2015	16/12/2015
	15/12/2016	15/12/2016
	14/12/2017	14/12/2017

Based on above details and considering quarterly calibration of pressure and temperature transmitters, there is delay in calibration for period from 11/03/2012 to 13/12/2012, however error factor is applied from 11/03/2012 to 15/12/2012 conservatively. Though calibration is done for year 2013 to 2017, the error factor for period from 01/03/2013 to 10/02/2018 is applied conservatively. For delayed calibration period, the error factor of 0.2% is considered as result of delayed calibration is within the permissible limit. Further, 1% error factor is also applied for PP side flow meter and then found that supplier side meter volume is higher than PP side gas flow meter volume. As after applying error factor for both Supplier meter and PP side meter, the higher quantity of gas readings of supplier side meter is higher and thus is conservative for the project activity. Also invoice is raised based on gas supplier meter. Hence the reading of gas supplier is considered as appropriate in line with the registered PDD.

Gas Flow meter Details-PP side		
Measuring Device		
S. No	Make:	Instromet
1	Model:	SM-RI-X-K G1600
2	Serial No:	10500162-2005
3	Accuracy Class	0.2 Qmax to Qmax: ± 0.5% Qmin to 0.2 Qmax: ± 1%
4	Calibration	27/05/2009, 15/06/2017

Calibration details of Gas chromatograph:
As per registered PDD, the NCV is measured by the Gas chromatograph that was installed by GAIL at their terminal and there is no any specific calibration frequency for Gas Chromatograph is mentioned. The supplier is doing calibration for operational period months only (March 2012 to March 2013 and April 2015) and details of calibration are provided below.

Gas Chromatograph calibrations	
Make	Daniel
Cylinder No	179203
Model	500
Sr. No	9007289
Repeatability	0.05%
Calibration Date	16/02/2012, 20/03/2012, 19/04/2012
	22/05/2012, 16/06/2012, 06/07/2012
	13/08/2012, 22/09/2012, 19/10/2012
	15/11/2012, 11/12/2012, 23/01/2013
	14/02/2013, 21/03/2013, 01/04/2015

The NCV is provided by supplier and calibration is not under scope of PP. Hence

	no any calibration delay is applicable for the current monitoring period. Based on above calibration details, PP has applied appropriate error factor for delayed calibration period and found to be appropriate.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan
Findings	No findings raised
Conclusion	The baseline emissions are calculated in line with registered PDD and found to be appropriate. The formula for baseline emissions calculations is as below: $BE_y = EG_{PJ,y} \times EF_{BL,CO2,y}$ The values and calculation of baseline emissions are checked from the actual emission reduction sheet and found correct.

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

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	No findings raised
Conclusion	Project emission calculation as per the registered PDD is mentioned below: $COEF_{f,y} = NCV_{f,y} \times EF_{CO2,f,y} \times OXID_f$ $PE_y = FC_f,y \times COEF_{f,y}$ The values and calculation of project emissions are checked from the actual emission reduction sheet and found correct

E.8.3. Calculation of leakage GHG emissions

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	NO findings raised.
Conclusion	Leakage emission calculation as per the registered PDD is mentioned below: As per registered PDD, The total leakage emissions are Leakage emissions due to fugitive upstream CH_4 emissions ($LE_{CH4,y}$) and Leakage emissions due to fossil fuel combustion / electricity consumption associated with the liquefaction, transportation, re -gasification and compression of LNG into a natural gas transmission or distribution system ($LE_{LNG,CO2,y}$) are calculated as below Thus, $LE_y = LE_{CH4,y} + LE_{LNG,CO2,y}$ As per registered PDD, Leakage emissions due to fugitive upstream CH_4 emissions are calculated as below $LE_{CH4,y} = [FC_{f,y} \times NCV_{f,y} \times EF_{NG,\ upstream,CH4} - EG_{PJ,y} \times EF_{BL,\ upstream,\ CH4}] \times GWP_{CH4}$

	As per registered PDD, $LE_{LNG,CO2,y}$ is calculated as: $LE_{LNG,CO2,y} = FC_y \times EF_{CO2,upstream,LNG}$ $LE_y = LE_{CH4,y} + LE_{LNG,CO2,y}$ The values and calculation of leakage emissions are checked from the actual emission reduction sheet and found correct

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

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered CDM project activity. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	There is no CAR/CL raised in this section.
Conclusion	Emission reductions in this monitoring period are: Total Baseline Emissions: 1,225,743 tCO_2e Total Project Emission: 481,976 tCO_2e Total Leakage emission: 50,521 tCO_{2e} Total Emission Reduction: Emission reduction calculation is done based on following formula, Emission reduction (ER_y) = Baseline Emission (BE_y) – Project Emission (PE_y) - Leakage emission (LE_y) = 693,246 tCO_2e[4]

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

Means of verification	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase/decrease if any.
Findings	No findings raised
Conclusion	The actual CER is 90.96% less than the estimated value for the monitoring period. This is due to low PLF of the power plant. This difference between actual and estimated has occurred due to less availability of NG gas during monitoring period and hence the project activity couldn't generate the estimated power and thus lower PLF is envisaged for the monitoring period.

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

Means of verification	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase/decrease if any.
Findings	No findings raised
Conclusion	The actual CER is 90.96% less than the estimated value. This is due to low PLF of the power plant. This difference between actual and estimated has occurred due to less availability of NG gas during monitoring period and hence the project activity couldn't generate the estimated power and thus lower PLF is envisaged for the monitoring period. However, ER estimation based on number of days of monitoring period, the project activity involves only 275 days operational out of 2163 days of monitoring period is 974,496 t CO_2e and actual ER achieved are 693,246 t CO_2e. Thus the actual ER is less than ER estimation by 28.86%. Same has been checked from the logbooks and found correct.

[4] The value is rounded down

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

Means of verification	The verification team has determined the CER achieved during first commitment period and second commitment period
Findings	There is no CAR/CL raised in this section.
Conclusion	1. GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012: 624,094 tCO_2e 2. GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards: 69,152 tCO_2e The assessment team has checked the pro rata approach used for calculations of emission reductions for monitoring period before 31/12/2012 and for monitoring period after 31/12/2012 during current monitoring period. PP has used daily data to determine the quantity of electricity and gas for period till 31/12/2012 and for period 01/01/2013 onwards. Verification team checked the plant data for daily electricity generation and gas consumption. The calculations are found to be appropriate as per para 376(g) of VVS and are then accepted.

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

Means of verification	Not applicable for the present monitoring period
Findings	Not applicable for the present monitoring period
Conclusion	Not applicable for the present monitoring period

E.10. Global stakeholder consultation

Means of verification	No comments received for the monitoring period
Findings	No comments received for the monitoring period
Conclusion	No comments received for the monitoring period

SECTION F. Internal quality control

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

SECTION G. Verification opinion

Applus+ Certification has been engaged by M/s GVK Gautami Power Limited to perform the 2nd periodical verification of the Natural Gas based grid connected power project at Peddapuram, A.P. by Gautami Power Limited (UNFCCC Ref. No. 4828)

The management of M/s GVK Gautami Power Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered approved Revised PDD Version 06 dated 07/09/2013 and the applied methodology AM0029 version 3.0.

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

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

In our opinion, the GHG emission reductions for "Natural Gas based grid connected power project at Peddapuram, A.P. by Gautami Power Limited" for the monitoring period 11/03/2012 to 10/02/2018 (Inclusive of both days) as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

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

Reporting period:	From 11/03/2012 to 10/02/2018 (Inclusive of both days)

Verified emissions in the above reporting period:

Leakage emissions	50,521 tCO_2 equivalents
Project emissions	481,976 tCO_2 equivalents
Baseline emissions	1,225,743 tCO_2 equivalents
Emission reductions	693,246 tCO_2 equivalents

SECTION H. Certification statement

Same as above

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
ER	Emission Reductions sheet
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
PP	Project Participant
PPA	Power purchase agreement

Appendix 2. Competence of team members and technical reviewers

1. Dr. Atul Takarkhede counts with 9 years of experience in field of Environmental Auditing, consulting and accreditation. He is an Expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management Reporting for organizations environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; Conducting Environmental/water Audits; NABET requirements appliance. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. He has Ph.D. (Environmental Science) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical reports related to environmental science. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.

2. Hanshen (Denny) Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Appendix 3. Documents reviewed or reference

No.	Author	Title	References to the document	Provider
1	NA	Commissioning certificates of power plant	Commissioning certificates of Power plant	Project participant
2	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
3	NA	VVS standard-version 01 PS standard Version 01 PCP standard version 01	UNFCCC web site	UNFCCC
4	NA	JMR sheets	JMR reports for the complete monitoring period	Project participant
5	NA	Invoices	Invoices for the complete monitoring period	Project participant
6	NA	Calibration certificates	Calibration certificates of the complete monitoring period for the monitoring parameters.	Project participant
7	NA	Gas tickets	Gas tickets to determine NCV and flow for the complete monitoring period.	Project participant
8	NA	MR version 01 MR version 02 MR version 03	MR version 01 dated 16/04/2018 MR version 02 dated 08/08/2018 MR version 03 dated 12/11/2018	Project participant
9	NA	ER sheet version 01 ER sheet version 02 ER sheet version 03	ER sheet version 01 dated 16/04/2018 ER sheet version 02 dated 08/08/2018 ER sheet version 03 dated 12/11/2018	Project participant
10	NA	Actual geo-coordinates by GE	Actual coordinates	Project participant
11	NA	Break Down details of both the Units	Log book records onsite	Project participant
12	NA	Guidelines for Application of materiality in verifications version 2.0	UNFCCC web site	UNFCCC

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

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

~~**FAR ID**~~	~~xx~~	~~**Section no.**~~	~~E.2~~	~~**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~~

Table 2. CL from this verification

CL ID	01	**Section no.**	E3	**Date:** 21/07/2018
Description of CL				
PP requested to clarify gas suppliers as per the invoices submitted and their monitoring arrangements.				
Project participant response				**Date:** 08/08/2018
The project activity involves only GAIL as gas supplier and gas joint tickets and invoices are submitted for the same.				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** 12/09/2018
From the *gas joint tickets and invoices it is evident that project activity involves only GAIL as gas supplier. CL is closed.*				

Table 3. CAR from this verification

CAR ID	01	**Section no.**	E1	**Date:** 21/07/2018
Description of CAR				
Table on first page of MR; Section "Monitoring report number for this monitoring report" not applicable as this not a bundled project and only one MR is required. Correction requested.				
Project participant response				**Date:** 08/08/2018
The section "Monitoring report number for this monitoring report" is mentioned as Not Applicable being only one MR is there for current monitoring period.				
Documentation provided by project participant				
Revised MR version 02				
DOE assessment				**Date:** 12/09/2018
Requisite corrections are made on first page of MR appropriately. CAR closed.				

CAR ID	02	**Section no.**	E1	**Date:** 21/07/2018
Description of CAR				
Instructions for completing this form, (a) Description of the installed technology (technical specifications of the equipments) are missing. Correction requested.				
Project participant response				**Date:** 08/08/2018
The technical specifications of the project activity are mentioned in section A.1 of MR. Also brief description is mentioned in section B.1 of MR.				
Documentation provided by project participant				
Revised MR version 02				
DOE assessment				**Date:** 12/09/2018
The technical specifications of the project activity are now included in the revised MR Section B.1. The same is cross checked with the technical details provided by the Manufacturers. CAR is thus closed.				

CAR ID	03	Section no.	E.5	Date: 21/07/2018
Description of CAR				
Line diagram of monitoring arrangement missing information of each monitoring meter to monitor gas consumption and electricity viz. auxiliary consumption meter and arrangements of main and check meters.				
Project participant response				**Date:** 08/08/2018
Meter details with line diagram is included in Section C of MR.				
Documentation provided by project participant				
Revised MR version 02				
DOE assessment				**Date:** 12/09/2018
The meter details of the monitoring equipment is checked and found correct. Further, Calibration details of monitoring meters is checked and found correct. The delayed factor is applied where necessary and the same is found acceptable to the assessment team. CAR is thus closed.				

CAR ID	04	Section no.	E.5	Date: 21/07/2018
Description of CAR				
PP requested to provide details of the operational period for lower electricity generation.				
Project participant response				**Date:** 08/08/2018
The details of operational period and non operational period details are submitted to DOE. *For non operational period , there is no any gas consumption by project activity and the same is as below* *18/08/2012 to 21/08/2012, 04/09/2012 to 09/09/2012, 23/09/2012 to 01/10/2012, 15/10/2012 to 21/10/2012, 31/10/2012 to 04/11/2012, 11/11/2012 to 22/11/2012, 01/12/2012 to 10/12/2012, 17/12/2012to 25/12/2012, 31/12/2012 to 08/01/2013, 14/01/2013 to 27/01/2013, 02/02/2013 to 19/02/2013, 23/02/2013 to 20/03/2013, 28/03/2013 to 08/04/2015, 01/05/2015 to 10/02/2018* *Plant is not operational due to unavailability of NG gas and hence there is less electricity production.*				
Documentation provided by project participant				
Logbooks				
DOE assessment				**Date:** 12/09/2018
The actual ER is 90.96% less than the estimated one. The same is due to non-availability of NG and thus the same is acceptable to the assessment team. CAR is thus closed.				

F

Table 4.FAR from this verification

~~FAR ID~~	~~xx~~	~~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~~

Document information

Version	*Date*	*Description*
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the "CDM validation and verification standard for project activities" (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
Keywords: project activities, verifying and certifying