



VERIFICATION REPORT



4.5 MW BIOMASS (LOW DENSITY CROP RESIDUES) BASED POWER GENERATION UNIT OF MALAVALLI POWER PLANT PVT LTD

UNFCCC Registration Ref. No.0298
GOLD STANDARD PROJECT ID: GS 343

Monitoring Period:
1 May 2009 to 30 June 2010.

REPORT NO. 2011-0707-G
REVISION NO. 01

DET NORSKE VERITAS



VERIFICATION REPORT

Date of first issue: 08 October 2011	Project No.: PRJC-338419-2011-CCS-IND
Approved by Edwin Aalders	Organisational unit: DNV Climate Change and Environmental Services
Client: Malavalli Power Plant Pvt. Ltd.	Client ref.: Mr. K. Krishnan

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Summary:

DNV Climate Change Services AS (DNV) has performed the gold standard verification of the emission reductions reported for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” (UNFCCC Registration Ref. No. 0298) & GS Project ID: GS-343 for the period 1 May 2009 to 30 June 2010.

In our opinion, the GHG emission reductions reported for the project in the GS carbon monitoring report (Version 01) of 02 September 2011 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology AMS-I.D (version 13) and the monitoring plan contained in the Project Design Document of 24 April 2008 and the revised Gold Standard specific Annexure to PDD, version 3 dated 3 September 2010.

Hence, DNV is able to verify that the emission reductions from the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” during the period 1 May 2009 to 30 June 2010. amount to 15 036 tonnes of CO₂ equivalent.

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Table of Content	Page
1 INTRODUCTION	1
1.1 Objective	1
1.2 Scope	1
1.3 Description of the project activity	1
1.4 Methodology for determining emission reductions	2
2 METHODOLOGY	3
2.1 Review of documentation	4
2.2 Site Visits	4
2.3 Reporting of findings	5
3 VERIFICATION FINDINGS	6
3.1 Remaining issues, CARs, FARs from previous validation / verification	6
3.2 Project implementation	6
3.3 Compliance of monitoring plan with monitoring methodology	6
3.4 Compliance of monitoring with the monitoring plan	7
3.5 Assessment of data and calculation of emission reductions	7
3.6 Monitoring of Gold Standard Sustainable Indicators	7
3.7 Quality of evidence to determine emission reductions	9
3.8 Management system and quality assurance	9
4 VERIFICATION OPINION	11
5 REFERENCES	12
Appendix A Corrective action requests and forward action requests	
Appendix B Curriculum Vitae of the Team members	

**Abbreviations**

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
IPCC	Intergovernmental Panel on Climate Change
KPTCL	Karnataka Power Transmission Corporation Limited
MP	Monitoring Plan
MPPPL	Malavalli Power Plant Pvt. Ltd
N ₂ O	Nitrous oxide
PDD	Project Design Document
SD	Sustainable Indicators
SPM	Suspended particulate matters
UNFCCC	United Nations Framework Convention on Climate Change



1 INTRODUCTION

Malavalli Power Plant Pvt. Ltd. (MPPL) has commissioned DNV Climate Change Services AS (DNV) to carry out the verification of sustainability development index of the gold standard requirements. The emission reductions for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” in Mandya District, Karnataka state, India for the monitoring period starting from 1 May 2009 to 30 June 2010. have already been verified (verification report ref number. 2011-9200 dated 2 June 2011) and issued by the CDM EB on 22 August 2011. Hence, this report summarises the findings of the Gold standard verification of the project, performed on the basis of Gold Standard (GS) for Clean Development Mechanism (CDM) projects.

1.1 Objective

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

The objective of this verification was to verify and certify emission reductions reported for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” for the period 1 May 2009 to 30 June 2010. along with the GS indicators for sustainability criteria.

1.2 Scope

The scope of the verification is:

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

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

1.3 Description of the project activity

The project activity is a 4.5 MW (gross) capacity grid connected biomass residues based renewable energy power plant with high pressure steam turbine configuration that comprises a condensing steam turbo generator unit with a matching boiler of travelling grate type capable



of firing multi fuel of low density crop residues and produces steam at 22 tonnes per hour. Biomass for the activity is sourced from the surrounding regions of Kirugaval village, Malavalli Taluka in Karnataka state. The generated electricity is exported to the state owned power utility company Karnataka Power Transmission Corporation Ltd. (KPTCL). Auxiliary plant facilities such as biomass storage and handling systems, ash handling system, air pollution control devices and cooling water systems have all been established.

Project Parties	India and Switzerland.
Title of the project activity	4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd.
UNFCCC Reference No	0298.
Gold standard Project ID	GS-343
Project Entity	Malavalli Power Plant Pvt Ltd from India, Myclimate – The Climate Protection Partnership and South Pole Carbon Asset Management Ltd. from Switzerland.
Location of the project activity	Kirugaval village, Malavalli Taluka, Mandya District, Karnataka state, India
Project's crediting period:	1 August 2008 to 31 July 2015 (second renewable crediting period)

Period verified in this verification: 1 May 2009 to 30 June 2010

The project was registered as a CDM project on 21 July 2006. The CDM CERs has been issued for the same monitoring period, from 1 May 2009 to 30 June 2010., by the CDM EB on 22 August 2011. For the previous verification period, 01 August 2008 to 30 April 2009 (fourth monitoring period; 1st verification of the 2nd crediting period), the GS CERs (9 211 GS CERs) has been issued . This is the second GS monitoring period of the second crediting period, 1 May 2009 to 30 June 2010. being submitted.

1.4 Methodology for determining emission reductions

The methodology implemented for determining the emission reductions for this project activity has been cross-checked and verified by DNV during the CDM verification of the project for same monitoring period, 1 May 2009 to 30 June 2010 (verification report ref number. 2011-9200 dated 2 June 2011).

The emission reductions due to the project activity is measured by determining the baseline emission and deducing the project emission and the leakages occurring.

Emission Reduction (ER) = Baseline emission – Project Emission – Leakage.



2 METHODOLOGY

This verification report must be seen in conjunction with the CDM verification/certification reports issued by DNV [Report NO. 2011-9200 dated 2 June 2011 for the period 1 May 2009 to 30 June 2010) which cover the verification period considered in this report.

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. Upon approval of the project by the Gold Standard for retroactive validation (Gold Standard communication dated 8 December 2006), the Gold Standard had recommended to the Project participants to monitor particulate matter emission levels as an additional measure to regular CDM monitoring procedures as well as the number of skilled and unskilled personnel directly employed by the project participants and amount of biomass usage by the plant. Regular CDM monitoring procedures as specified in the PDD of the project activity account for:

- Determination of project emissions and emission reductions during the crediting period
- Determination of leakage due to transport of biomass and competing uses for biomass resources
- Determination of monitoring method (including data registration, monitoring, measurement and calibration) and the equipment applied
- Quality assurance and control procedures for the monitoring process
- Documentation of all other relevant monitoring steps.

Verification Team

<i>Role/Qualification</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>	<i>Type of involvement</i>					
				Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Expert input
Project manager/	Swarnim	Shilpa	India	√					
Technical Team Leader/ CDM Verifier/ Sectoral competence	Kakaraparthi Venkat	Raman	India	√	√	√	√		√
Assessor under training	Kaliaperumal	Thamizharasi	India	√	√	√			
Assessor under training	Swarnim	Shilpa	India	√	√	√			
TA competent person assisting TR	Syam	Miriyala	India						√
Technical reviewer	Telnes	Einar	Norway					√	

**Duration of verification**

Preparations: *From 15 September 2011 to 30 September 2011*

On-site verification: *On 3 October 2011*

Reporting, calculation checks and QA/QC: *From 5 October 2011 to 6 December 2011*

2.1 Review of documentation

The GS Sustainable Indicators monitoring report for the period 1 May 2009 to 30 June 2010, version 1 dated 02 September 2011 /1/, the Project Design Document of 24 April 2008 /8/, Annex to the PDD meeting additional requirements for the Gold standard version 3 /9/ dated 3 September 2010, the CDM verification/certification report issued by DNV (Report No. 2011-9200) dated 2 June 2011 for the period 1 May 2009 to 30 June 2010 /22/, and the emission reduction calculations provided in the form of spreadsheets /3/ were assessed as part of the verification. The Gold standard validation report, report no: 2007-4003 /19/, and the simplified baseline and monitoring methodology applied to the project at the time of PDD registration, AMS-I.D version 13 /17/ submitted by M/s MPPL were also assessed as a part of the verification. Other relevant documents were also assessed as evidence.

2.2 Site Visits

Detailed verification of all data contained in the monitoring report was performed during a site visit at Malavalli Power Plant Pvt. Ltd on 03 October 2011. During the site visit, the following personnel were interviewed by and/or assisted the verification team.

Interviewed organisation	Interview topics
MPPL 1. Mr. K. Krishnan 2. Mr. Nara Singh	Agenda ➤ Status of the GS Project ➤ Adherence to monitoring plan established in Annex to the PDD meeting additional requirements for the GS project activity ➤ Interaction with stakeholders and families involved in the Project activity ➤ Monitoring plan and procedures ➤ Monitoring procedure for sustainable indicator parameters. ➤ Whether the project has been implemented as planned ➤ Management procedures like internal reviews to minimise uncertainties in data monitoring and data management. ➤ Resources, training needs and procedures for operation and maintenance. ➤ Project performance



2.3 Reporting of findings

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

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

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

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

During this verification period no CAR has been raised.

For the previous GS verification, period covering 01 August 2008 to 30 April 2009 (corresponding to CDM fourth monitoring period- 1st verification of the 2nd crediting period), during the 2-week verification review period by the GS registry /26/ three FARs were raised by Gold standard review committee, to be addressed by the Project participant and the responses to be verified by DOE during next verification and provide its independent opinion on this aspect. The same has been addressed and all FARs have been closed.

Refer Appendix A.



3 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions and the sustainable development indicators reported for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” /1/ for the period 1 May 2009 to 30 June 2010.

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

During the previous GS verification (covering period 01 August 2008 to 30 April 2009) in the 2-week verification review period by the GS registry /26/ three FARs have been raised to be addressed by the Project participant and the responses to be verified by DOE during next verification and provide its independent opinion on this aspect. The same has been addressed and all the previous FARs closed.

Details of FAR from the previous GS verification have been provided in Appendix A.

3.2 Project implementation

The project implementation status has been cross checked and verified by DNV during the CDM verification of the project for same monitoring period, 1 May 2009 to 30 June 2010 (verification report ref number. 2011-9200 ; dated 2 June 2011) /22/.

In the CDM verification report, DNV was able to confirm that the project implementation is in accordance with the project description contained in registered PDD of 24 April 2008 /8/. The CDM CERs had already been verified and issued by the CDM EB on 22 August 2011.

Hence, this verification report must be seen in conjunction with the CDM verification / certification reports issued by DNV [Report NO. 2011-9200] – dated 2 June 2011 for the period 1 May 2009 to 30 June 2010) /22/ which cover the verification periods considered in this report.

3.3 Compliance of monitoring plan with monitoring methodology

The methodology applied for the project activity is I.D. Grid connected renewable electricity generation, version 13, /17/. This is in accordance with Appendix B of simplified modalities and procedures for small-scale CDM project activities. This monitoring plan is developed in accordance with the modalities and procedures for small-scale CDM project activities. The monitoring plan implemented by the project proponent describes about the monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

DNV is able to confirm that the monitoring plan and formulae contained in the registered PDD 24 April 2008 /8/ and the revised Gold Standard specific annexure to the PDD, version 3 dated 3 September 2010 /26/ are in accordance with the approved methodology applied by the project activity, i.e. AMS-I.D (version 13) /17/.



3.4 Compliance of monitoring with the monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD 24 April 2008 /8/ and the revised Gold Standard specific Annexure to PDD, version 3 dated 3 September 2010 /26/. The approved baseline methodology AMS-I.D (version 13) /17/ has been applied for the project activity. The monitoring period was from 1 May 2009 to 30 June 2010.

The monitoring has been carried out in accordance with the monitoring methodology AMS-I.D. (version 13) /17/, which requires following to be monitored:

- Determination of baseline emissions, project emissions and emission reductions during the crediting period
- Determination of leakage due to transport of biomass and competing uses for biomass resources
- Biomass quantity utilized by the project activity
- Net calorific value of each kind of biomass residues

II. In line with the Gold Standard specific Annexure to the PDD (version 3 dated 3 September 2010) following Gold Standard Sustainable Indicators were monitored:

- Air Quality (Particulate emission levels measured periodically at the stack of the biomass based plant)
- Employment (quantity)
- Livelihood of the poor (Biomass usage)

3.5 Assessment of data and calculation of emission reductions

Assessment of data and calculation of emission reductions have been cross-checked and verified by DNV during the CDM verification of the project for same monitoring period, 1 May 2009 to 30 June 2010 (verification report ref number. 2011-9200 ; dated 2 June 2011) /22/.

DNV had verified /22/during the CDM Verification for the period 1 May 2009 to 30 June 2010 that the emission reductions from the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” amount to 15 036 tonnes of CO₂ equivalent. The CDM CERs have already been verified and issued by the CDM EB on 22 August 2011.

This verification report must be seen in conjunction with the CDM verification/certification reports issued by DNV [Report NO. 2011-9200] dated 2 June 2011 for the period 1 May 2009 to 30 June 2010) /22/which cover the verification periods considered in this report.

3.6 Monitoring of Gold Standard Sustainable Indicators

The Sustainable Development Matrix for the project activity is provided in the Gold Standard Annex /26/ submitted at the time of GS registration.



The Sustainable Development Assessment Matrix shows that there are no indicators, which would be critical for a positive contribution of the project to sustainable development or that are particularly sensitive. Further, the initial stakeholder consultation has not demonstrated any concerns, which would require any special monitoring.

Upon approval of the project by the Gold Standard for retroactive validation (Gold Standard communication dated 8 December 2006) /19/, the Gold Standard recommended to monitor particulate matter emission levels as an additional measure to the regular CDM monitoring procedures.

3.6.1 Air quality

Air quality is improved substantially due to the present project activity as compared to the common practice of uncontrolled burning of biomass residues on the fields. The indicator considered for this indicator is particulate emission levels measured periodically at the stack of the biomass based plant (*EL_{particulateemissions}*). The suspended particulate emission at the stack of the biomass based plant levels are measured periodically, every month. Measurements are conducted by qualified independent external agency, which guarantee for the accuracy of the measurement procedures and equipment.

The measurements have been conducted monthly by M/s. Amulya Associates and M/s. Ganesh Consultancy & Analytical Services /5/ /13/.

The monitoring results of the suspended particulate matter (SPM) for the period under consideration, i.e., 01 May 2009 to 30 June 2010 are verified to be below the defined maximum limits of 150 ppm, as prescribed by the Karnataka state's Pollution Control Board in the air consent provided to the project activity.

3.6.2 Livelihood of the poor

The involved farmers in the biomass supply chain benefit from selling agricultural residues to the power plant, which earlier had no value. This creates additional income in the region and helps alleviating poverty, especially among the poor rural community. The indicator considered to measure this parameter is the biomass consumption by the power plant. Direct contribution of the project activity to the local populace can be measured by the amount of biomass consumption by the plant, as it is entirely procured from the region, and the contribution of the project activity towards livelihood of the poor in the region can be suitably established.

Local population have also been educated on avoiding practices of burning biomass waste in the open fields and instead accumulate the same and sell it to the biomass suppliers for subsequent use as biomass fuel in the power plant. This helps in the improvement of ambient air and soil quality. At the same time the local villagers have been educated on practices to help them realize the economic value of waste.

The documentary evidence of biomass usage data for the plant has also been submitted to the UNFCCC based on the CDM verification and the same has been reviewed by DNV during the course of CDM verification /10//4/.

During the current verification period project activity has consumed 45 374.184 tonnes of biomass residue (2 926.5 tonnes of cane trash, 25 205.56 tonnes of coconut fronds, 2 866.49



tonnes of corn cob, 9 315.67 tonnes of toppings and 5 059.96 tonnes of husk) and the biomass had been procured from various suppliers/farmers, surrounding nearby villages within 100 km radius of the project activity. The villagers are also been educated on avoiding practices of burning biomass wastes in the open fields and instead accumulate the same and instead selling it to the biomass suppliers for subsequent use as biomass fuel in the power plant. Hence not only has the project proponent contributed to the improvement of ambient air and soil quality, at the same time this has also helped to create employment for the local people of the villagers. DNV observes that the project itself has generated employment as elaborated in section 3.6.3.

3.6.3 Employment

The project impact has been stated as enormous in terms of the number of skilled and unskilled personnel directly employed by the project participants. The project continues to generate employment in the biomass supply chain (supporting, entrepreneur characteristics of the local populace) as well as for the purpose of the operation of the power plant.

The quantitative values of direct and indirect employment generated has been sourced from records maintained and submitted by the project proponent in the form of employee attendance registers /7/, monthly invoices generated for payrolls and relevant explanations /6/. The approximate total number of personnel directly employed by the project activity as verified from the attendance registers and payroll invoices maintained by the project proponent is found to be 166.

The different categories of employees recruited are divided as follows:

- Operation and maintenance staff: 43
- Operation and maintenance contract laborers: 38
- Biomass feeding contract laborers: 41
- Biomass feeding contract laborers (Punjab): 26
- Plant security: 8
- Heggur (fertiliser production facility) Security- 4
- Fertilizer Production Labors- 6

The total number of personnel directly employed by the project participants for the previous verification period, 1 August 2008 to 30 April 2009, is reported to be 155 (as detailed in FAR 2) and for the current monitoring period ,1 May 2009 to 30 June 2010, the employment figure has been verified to be 166. Hence an increase in employment number has been observed during the current monitoring period.

3.7 Quality of evidence to determine emission reductions

All the evidences to determine the emission reductions has been cross-checked and verified by DNV during the CDM verification of the project for monitoring period 1 May 2009 to 30 June 2010 (verification report ref number. 2011-9200 ; dated 2 June 2011). Sufficient evidence was presented for the reported net emission reductions

3.8 Management system and quality assurance



Malavalli Power Plant Pvt Ltd. has established management procedures and DNV has verified that these are implemented effectively. The procedures cover management responsibilities, data monitoring, training, periodical internal audits, and management reviews. Supporting documents like minutes of meeting and internal audit for QA and QC were evidenced during site visit.



4 VERIFICATION OPINION

DNV Climate Change Services AS (DNV) has performed the Gold Standard verification of the sustainable development indicators reported for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” (UNFCCC Registration Reference No. 0298) for the period covering 1 May 2009 to 30 June 2010. The emission reductions generated during this period were verified under a CDM verification of the project and have been issued by the CDM EB on 22 August 2011.

The project participants are responsible for the collection of data in accordance with the registered monitoring plan and the reporting of Sustainable Indicators from the project.

It is DNV’s responsibility to express an independent verification statement on compliance with chosen sustainability indicators.

DNV has conducted the verification on the basis of the monitoring methodology AMS-I.D (version 13) the monitoring plan contained in the registered Project Design Document of version 01 dated 24 April 2008, the CDM verification/certification report (period 1 May 2009 to 30 June 2010) issued by DNV [Report NO. 2011-9200] dated 2 June 2011 and the GS monitoring report (Version 01) dated 02 September 2011. The verification included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data. In our opinion the sustainable indicators monitored for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” (UNFCCC Registration Ref. No. 0298) for the period 1 May 2009 to 30 June 2010. are fairly stated in the GS monitoring report (Version 01) dated 02 September 2011 and the reported information on compliance with chosen sustainability indicators is free from material misstatement. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS-I.D (version 13) and the monitoring plan contained in the registered PDD of version 1 dated 24 April 2009.

DNV Climate Change Services AS is able to verify that the emission reductions from the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd” during the period 1 May 2009 to 30 June 2010. amount to 15 036 tonnes of CO₂ equivalent and that the reported information on compliance with chosen sustainability indicators is free from material misstatement.

Bangalore and Oslo, 6 December 2011

Kakaraparthi Venkata Raman
CDM Verifier
DNV India

Edwin Alders
Approver
DNV Climate Change Services AS



5 REFERENCES

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

/1/	MPPL: Gold Standard Sustainable indicators Monitoring report; version 01, dated 2 September 2011
/2/	MPPL: CDM Monitoring report for “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd.” For period 1 May 2009 to 30 June 2010, version 1 dated 16 December 2010 ,version 2 dated 22 March 2011.
/3/	MPPL: Emission reduction spreadsheet_1 May 2009 to 30 June 2010.xls version 1 dated 16 December 2010 and final version 2 dated 22 March 2011.
/4/	MPPL: Fuel purchase receipts, biomass residues consumption data sheet and transportation vehicle details for the current verification period (1 May 2009 to 30 June 2010).
/5/	Ganesh Consultancy & Analytical Services: Monthly suspended particulate matter value certificate for the current verification period (1 May 2009 to 30 June 2010).
/6/	MPPL: Monthly Salary pay slips issued to employees of MPPL during the whole monitoring period of 1 May 2009 to 30 June 2010 .
/7/	MPPL: Attendance register for all the employees of MPPL directly employed for the period for the period of 1 May 2009 to 30 June 2010.
/8/	MPPL: CDM-PDD for “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd.” Version 2 dated 24 April 2008.
/9/	MPPL:Annex to the PDD meeting additional requirements for the Gold standard, version 3, dated 3 September 2010
/10/	MPPL: Fuel Supplier list for the project activity.
/11/	MPPL: Attendance register for all the employees of MPPL directly employed for the period 01 August 2008 to 30 April 2009.
/12/	MPPL: Monthly Salary pay slips issued to employees of MPPL during the whole monitoring period of 01 August 2008 to 30 April 2009.
/13/	M/s Amulya Associates: Monthly suspended particulate matter value certificate for the current verification period (1 May 2009 to 30 June 2010).
/14/	M/s Amulya Associates: Monthly suspended particulate matter value certificate for the current verification period 01 August 2008 to 30 April 2009.
/15/	MPPL: Letter from MPPL confirming association of MPPL with GAM, dated 14 October 2011



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

/16/	CDM Executive Board: Validation and Verification Manual. Version 01.2
/17/	CDM Executive Board: Simplified baseline and monitoring methodology AMS-I.D – Grid connected renewable electricity generation, Version 13
/18/	CDM Executive Board: Guidelines for assessing compliance with the calibration frequency requirement version 1.
/19/	CDM Executive Board: General guidance on leakage in biomass project activities version 03 EB 47 Annex 28.
/20/	DNV: Validation report for the “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd.” DNV Report No. 2008-10565, revision 2 dated 26 January 2009.
/21/	DNV: First Verification Report (renewal crediting period) for “4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd.” DNV Report No. 2009-0210, revision 3 dated 13 May 2010.
/22/	DNV: CDM verification/certification report issued by DNV [Report NO. 2011-9200] dated 2 June 2011 for the period 1 May 2009 to 30 June 2010.
/23/	GS Annexures to Tool kit; version 2.1
/24/	CDM-GS Gold standard Developer Manual www.cdmgoldstandard.org
/25/	The Gold Standard Validation & Verification Manual, version 2.1
/26/	GS: Comments and requests received during the 2-week Verification review period for the fourth monitoring period (1st Verification of the 2nd Crediting Period)

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

/27/	Mr. Nara Singh, MPPL
/28/	Mr. K Kishan, MPPL

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APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

CAR ID	Corrective action request	Response by Project Participants	DNV’s assessment of response by Project Participants
	NO CAR was issued		

Clarification requests

CAR ID	Corrective action request	Response by Project Participants	DNV’s assessment of response by Project Participants
CL 1	No CL was issued		

Forward action requests from previous verification

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
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FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
FAR 1	During the 2-week Verification review period by GS registry for the fourth monitoring period (1st Verification of the 2nd Crediting Period) (Monitoring Period 01 August 2008 to 30 April 2009); the following FAR was raised. “The DOE during next verification is required to verify and confirm if the reported values of SPM during current monitoring period are correct.”	Addressing the comments raised by GS registry during the 2-week Verification review period, PP had responded to GS stating that it agrees to get the SPM emission levels from the stack (reported in the Monitoring Report for the period Monitoring 01/08/2008 – 30/04/2009) verified by a DOE during the next periodic verification.	DNV has assessed the Stack emission report issued by third party agency, M/s Amulya Associates for the monitoring period of 01 August 2008 to 30 April 2009. The suspended particulate emission at the stack of the biomass based plant levels are measured periodically, every month. Measurements are conducted by qualified independent external agency, which guarantee for the accuracy of the measurement procedures and equipment. The measurements has been conducted monthly by M/s. Amulya Associates and M/s. Ganesh Consultancy & Analytical Services . Hence the FAR is closed. The results of the suspended particulate matter (SPM) for the monitoring period under consideration, i.e., 01 May 2009 to 30 June 2010 are well below the defined maximum limits prescribed by the Karnataka state’s Pollution Control Board of 150 PPM. The same has been crosschecked by DNV by verifying the monthly emission certificates issued by Karnataka state’s Pollution Control Board for all the months during the site inspection and the level of emission of SPM has been convincingly found to be satisfactory and within the limits prescribed. DNV has reviewed the GS Monitoring report for the monitoring period of 01 August 2008 to 30 April 2009 and found this to be in line with values mentioned in the MR. OK Accepted FAR 1 Closed

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
FAR 2	During the 2-week Verification review period by GS registry for the fourth monitoring period (1st Verification of the 2nd Crediting Period) (Monitoring Period 01 August 2008 to 30 April 2009); the following FAR was raised. “The DOE during next verification is required to verify and confirm if quantitative figures given for Employment (quantity) during Current monitoring period are correct.”	Addressing the comments raised by GS registry during the 2-week Verification review period, PP had responded to GS stating that the DOE can verify the direct employment generation by MPPL, featuring on its payrolls or attendance registers.	DNV has assessed the employee attendance registers, monthly invoices generated for Payrolls for the Monitoring Period 01 August 2008 to 30 April 2009 to access the quantitative values for number of direct employment generated The total number of personnel directly employed by the project activity as verified from the STATEMENT OF ATTENDANCE MONTHWISE maintained by the project proponent are found to be 155. The different categorical division of the employees recruited are under following divisions. -Operation and maintenance staff: 49 -Operation and maintenance contract labours: 35 -Biomass feeding contract labours: 45 -Biomass feeding contract labours (Punjab): 5 -Plant security: 7 -Heggur security(fertiliser production facility):4 -Fertilizers Production labours:10 The above stated numbers have been crosscheck and verified by DNV against employee attendance registers and monthly invoices generated for Payrolls of the above stated employees and found to be satisfactory. The above statement is hence justified and acceptable. OK Accepted FAR 2 Closed.

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
FAR 3	During the 2-week Verification review period by GS registry for the fourth monitoring period (1st Verification of the 2nd Crediting Period) (Monitoring Period 01 August 2008 to 30 April 2009); the following FAR was raised. “The DOE during next verification is required to verify and provide its independent opinion on this aspect (of the inclusion of the SD indicator, Human and institutional capacity, in the SD monitoring plan along with a relevant monitoring parameter)” .	Addressing the comments raised by GS registry during the 2-week Verification review period, PP had responded to GS that there are several complexities in monitoring of the parameter and hence as a conservative approach, the score of this parameter has been reduced to +1 in the revised GS annex/ version 03.	DNV observes that the project activity is a biomass based project generating electricity to the grid. The project activity during its operation sources its requirement of raw material (biomass) from the neighbouring localities. The quantity procured (MT), number of suppliers, temporary labor employed and the payments made are all monitored by the project proponent and were verified by DNV. All these indicate the impact of the project on the human and institutional capacity on the local community. DNV also observes that the local labourers are organised in the platform of Grameena Udyog Samithi (GUS), which gives them a platform for representing their interests. DNV has verified the minutes of the meeting of each interactions held with the local people. The same were provided as justification by the PP during the GS review report, against the FAR raised, and were accepted by the GS. It is DNVs opinion that beyond the above mentioned indirect parameters, which are already being monitored by the PP and verified by DNV during every verification, it is difficult to monitor the Human and Institutional Capacity indicator for sustainability indicator. Hence DNV accepts PP's contention on monitoring this parameter and the conservative approach adopted. DNV's acceptance is also based on the fact that GS has also accepted the reasoning and evidences provided by the PP in its previous verification.. states the same justification and deems it upright and satisfactory. OK Accepted FAR 3 Closed

DET NORSKE VERITAS

Forward action requests from this verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
FAR 1	No FAR raised		

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APPENDIX B

CURRICULA VITAE OF THE VERIFICATION TEAM MEMBERS

Kakaraparthi Venkata Raman holds a bachelor degree (B.Tech) in Chemical Engineering and a Diploma in Management. He has an overall experience of 18 years in the Chemical Process Industry - Fertilisers and Chemicals industry (FACT). His main areas of work include a) Technical Services (for Ammonia, Urea, Co-generation thermal power plants (captive), and complex fertilizers plants)- 10 years b) Erection, commissioning and hands-on operation of state of art HTAS Ammonia plant - 4 years c) Management and operation of Sulphuric acid plant as Plant Manager- 2 years and d) two years in management Information System operation and assisting of top management in planning of operations..

While in FACT he has completed the ISO14001 EMS LA course and also involved in implementation of Environmental Management Systems and in conducting internal audits.

Experience prior to joining Fertiliser industry includes six months experimental work on charcoal manufacture in Karnataka Regional Engineering College.

He has experience of around 5 years in validation and verification of numerous CDM projects. His qualification, industrial experience and experience in CDM demonstrate him sufficient sectoral competence in areas of (a) 1.1 Thermal energy generation from fossil fuels and Biomass as well as thermal electricity from solar (b) 1.2 Energy Generation from renewable energy sources (c) 5.1/4.13/11.1/12.1 Chemical Processes Industries and (d) 13.1 Waste handling and disposal. At present he is Technical Manager, South Asia, DNV, India.

Thamizharasi Kaliaperumal holds a Bachelor Degree in Chemical Engineering. She has an overall experience of around five years in Chemical /Petrochemical processing industries and CDM Consultancy altogether. Her main areas of work include Production support, Process trouble shooting (Technical Services), Energy Management (EnCon Measures, Energy Audits, CDM projects), Project feasibility studies, Management Information System.

Shilpa Swarnim, GHG Auditor under Training, hold masters degree in Biotechnology from Bangalore University. She has more than 5 years work experience into Research and Academics. Her topic of research centers around issues related to Forestry, Environment, Climate change impact on forest ecosystems, studying the climate impact modeling for future predictions of climatic and vegetation dynamics.

Syam Miriyala, Electrical Engineer with significant experience in thermal power plants, co-generation power plants. Erection and Commissioning, Power system Operation and Maintenance, Power system Protection. As Power Plant Engineer with Shree Renuka Sugars Limited from 24-11-2009 to 31-03-2011 Executed Erection and Commissioning of 1X30 MW Co-Generation plant with 110-132/11 KV voltage level out-door switch yard and balance of plant electrical systems.

Involved in Operation and Maintenance of 1X30 MW Co-generation plant, 110-132/11 KV switch yard and balance of plant include 140 TPH Boiler, Fuel and Ash Handling systems. As Asst. Engineer (Electrical) with G.S.R Sugars Limited from 05-06-2007 to 17-11-2009, involved in operation and Maintenance of 1X16.25 MW Co-Gen Power Plant, 2500 TCD Sugar Plant

