



Voluntary Carbon Standard Version 2007.1 Final Verification Report

27th April 2011

53801210-10/320

Final Verification Report:

Name of Verification company:	Date of the issue:
TÜV NORD CERT GmbH	2011-04-27
Report Title:	Approved by:
8MW Waste Heat Recovery Based Power Project by Sree Rengaraaj Power India Private Limited	Mr. Winter Rainer
Client:	Project Title:
Sree Rengaraaj Power India Private Limited ABI Energy Consultancy Services Private Limited	8MW Waste Heat Recovery Based Power Project by Sree Rengaraaj Power India Private Limited
Summary:	

VCS 2007.1 Final Verification Report for the project entitled "8MW Waste Heat Recovery Based Power Project by Sree Rengaraaj Power India Private Limited"

M/s Sree Rengaraaj Power India Private Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the verification of the project - "8MW Waste Heat Recovery Based Power Project by Sree Rengaraaj Power India Private Limited." with regard to the relevant requirements of VCS 2007.1 Standard.

By GHG emission reductions through waste heat based power generation at Sree Rengaraaj Power India Private Limited which involves utilization of waste heat content of the by-product gasses emanating out of the process by installing Waste heat recovery boilers to generate steam and subsequently power. The electricity generated by this project activity is used within the industrial facility for captive usage and the remaining surplus power is wheeled to its sister concern through southern regional grid. Thus the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

A risk based approach has been followed to perform this verification. In the course of the verification four (05) Corrective Action Requests (CAR) and two (03) Clarification Request (CL) were raised and successfully closed out.

The verification is based on the draft monitoring report^{/MR1/} and the monitoring plan as set out in the validated PD^{/VCS-PD/}, the validation report^{/VR/}, draft emission reduction calculation spreadsheet^{/ER/} and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the GHG emission reduction in the reported monitoring period (28/03/2006 to 27/12/2009) is:

104,586tCO₂e.

Work carried out by:	Number of pages:
Mr. Ma. Paa.Puratchikkanal (TL) Mr. B.J.M Amarnath(TM &TE) Mr. S. Stalin(TM) Ms. A. Kirthika(TM) Mr. Sukanta Das (OR) Mr. Lars Kirchner(TR)	22

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1 Introduction

1.1 Objective

The purpose of this verification, by independent checking of objective evidence, is as follows:

- to verify that the project is implemented as described in the Project Design Document;
- to confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs¹) without any double counting during the monitoring period from 28/03/2006 to 27/12/2009, and
- to establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification of this VCS project is based on the VCS project description ^{/VCS-PD/}, the monitoring report ^{/MR/}, and supporting documents made available to the verifier and information collected through performing interviews during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The TÜV NORD JI/CDM CP has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

1.3 VCS project Description

The project activity is waste heat recovery based to meet the entire power requirement of the steel plant of Sree Rengaraj steels and its sister concerns through the southern grid. The project involves the installation of Waste heat recovery boiler to recover the and utilize the sensible heat content of the waste gases generated from the DRI kiln installed at the steel plant. The project activity involves the generation of electrical energy through the steam produced by the waste heat recovery boiler of capacity 36 TPH operating at 64 kg/cm² and 485°C. the steam generated from the waste heat recovery boiler would fed to the turbine of 8MW for generation of power. The overall power requirement of the steel plant would be met from the project activity and the remaining surplus power is wheeled to its sister concerns through

¹ As per VCS, Verified Emission Reductions (VERs) are considered to be VCUs only after successful registration in an approved VCU Registry

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the southern grid. In absence of the project activity the equivalent amount of power would have been imported from the southern grid which is a carbon intensive source most likely a coal based power plant. Further in the absence of this project activity the waste heat coming out from the DRI kiln would have been released to the atmosphere. Thus the project activity results in prevention of wastage of useful energy along with overall reduction of Green house gas emissions.

The emission reduction is based on net electricity generated from the project activity. The validated ex-ante emission factor (0.85573754tCO_{2e}/MWh) is in accordance with ACM002/ACM002/ version 7.0 which refers "Tool to calculate emission grid emission 1.1". The grid emission factor was calculated from carbon dioxide database (CEA Version 4). The net quantity of electricity generated from the project activity would be calculated ex-post from the recorded readings from the meter that is the difference between Total quantity of electricity generated by the project activity (EG_{gross}) and Auxiliary power consumption (EG_{Aux}). The auxiliary power consumption (EG_{Aux}) of the project activity is the addition of Auxiliary consumption of electricity by the project activity from its own generation (EG_{Aux-from CPP}) and Import of power from TNEB grid (EG_{Aux-from Grid}).

1.4 Level of assurance

The verification report is based on VCS PD^{/VCS-PD/} and Monitoring report^{/MR/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. The verification opinion is assured provided the credibility of all above.

2 Methodology

The verification of the project was carried out from March 2010 to July 2010.

Preparations	:	06/03/2010 to 08/03/2010
On-site verification	:	08/04/2010
Draft Reporting	:	23/06/2010
Final Reporting	:	27/04/2011

The verification consists of the following steps:

- A desk review of the VCS PD ^{/VCS-PD/} and supporting documents with the use of the relevant sections of a customised protocol according to the VCS 2007.1;
- A desk review of the Monitoring Report ^{/MR/} and additional supporting documents which were

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submitted by the client. The relevant sections of the above mentioned customised protocol according to the VCS 2007.1 were used;

- Validation report of the VCS PD;
- Verification audit planning;
- On-Site assessment;
- Background investigation and follow-up interviews with personnel of the project developer; and
- Verification reporting (Draft Verification Report and Final Verification Report).

The criteria of this verification include the relevant rules and steps as set out in the VCS 2007.1.

3 Verification Findings

3.1 Remaining issues, including any material discrepancy, from previous validation

A forward action request (FAR) was issued during the validation stage, where the actual project monitoring and reporting practices requires attention and /or adjustment for the consecutive verification period. All raised CARs and CLs were successfully closed during the validation of the project design. The verification has been carried out based on the final VCS PD and VCS-Validation Report^{/VR/}.

CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
CL 3.1.1 With reference FAR in the validation report states that "The Methodology is requiring f_{cap} in order to cap the baseline emissions to an extent which has happened in the base year. Since the way of monitoring $Q_{WCM,y}$ is not clear, and assuming that the plant will be	/MR/ / /VC S- PD/ /VR / /TP R/	The f_{cap} calculation has been substantiated with third party Technical Assessment study report and same was submitted to the Verifier.	/MR/ /VCS -PD/ /VR/ /TPR /	The third party report submitted was verified and found that the f_{cap} is determined as 1 which was inline the validated PD. The FAR is thus Closed for First Periodic Verification and needs to be assessed during subsequent

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CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
operating without any change in load, so $Q_{WCM,y}$ can be calculated in the same fashion like $Q_{WCM,BL}$. $Q_{WCM,y}$ is mainly dependent on the operation hours/days the plant operates in year y hence the waste gas quantity and the operating days has to be demonstrated throughout the crediting period". In this regard PP need to submit the proof for the above.				periodic verifications. Hence CL 3.1.1 is closed.

3.2 Project Implementation

The project activity involves generation of electricity from waste heat produced during sponge iron conversion process which would have otherwise been imported from southern regional grid. The project activity involves supply, erection, commissioning and operation of 8 MW waste heat recovery boiler and turbines^{/TD/}. Sree Rengaraaj Power India Private Limited (SRPIL) is operating a Sponge Iron Plant at SIPCOT Industrial growth centre, Perundurai Taluka, Erode district, Tamil Nadu. The sponge iron is produced by the conversion of sponge iron ore in the rotary kiln which is operated at a very high temperature. The flue gas generated due to the conversion process which has high heat content is recovered in waste heat recovery boiler and is used for producing electricity. The generated electricity is used for the sponge iron industrial process in the SRPIL and also wheeled thro southern grid for its sister concerns. During the verification a site visit was carried out 08/04/2010. . On the basis of this site visit^{/IM01//IM02/} and the reviewed project documentation^{/TD/}, it can be confirmed that w.r.t. the realized technology, the project equipments^{/TD//SC/}, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the Validated PD^{/VCS-PD/}. There are no major changes in the key equipment since the validation of the project. The project uses waste energy for electricity generation. Also no change is envisaged. These facts have been verified during site visit.

The earliest commissioning date of the project activity was December 2005. As per the VCS 2007.1 the crediting should starts after 2006-03-28. Thus the crediting period start date for the project activity is from 2006-03-28 to 2009-12-27 (both days included) as described in the monitoring report^{/MR/}. During the monitoring period 2006-03-28 to 2009-12-27 (both days included) the project activity has displaced net electricity of 122245331.2 KWh and thus the total emission reduction comes to 104,586tCO₂e.

No CAR/ CR was raised

3.3 Completeness of Monitoring

The reporting^{/MR/} is in line with the requirements of the validated monitoring plan as well as with the applied methodology ACM 0012 version 3.1/^{ACM 0012/}. The reporting procedures reflect the requirements of the monitoring plan^{/VCS-PD/}.

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The monitoring period of the project activity covers the period from 2006-03-28 to 2009-12-27. The only key monitoring parameter with influence on the calculation of the emission reductions is the net electricity generated from the project activity. The net quantity of electricity generated from the project activity would be calculated ex-post from the recorded readings from the meter that is the difference between Total quantity of electricity generated by the project activity (EG_{gross}) and Auxiliary power consumption (EG_{Aux}). The auxiliary power consumption (EG_{Aux}) of the project activity is the addition of Auxiliary consumption of electricity by the project activity from its own generation ($EG_{Aux-from\ CPP}$) and Import of power from TNEB grid ($EG_{Aux-from\ Grid.}$). The gross electricity generation, auxiliary consumption and are measured with a high accuracy and duly calibrated class 1.0 energy meter. The import power from grid is measured using 0.5 class energymeter. The monitoring parameters are recorded as per the monitoring plan. Individual meters have been provided at the time of commissioning. The meter readings^{/GR/} for gross energy meter and auxiliary energy meter are carried out daily. The import meter readings^{/GR/} are carried out once in a month by state electricity board. All relevant evidences^{/GR//LOG/} were fully checked by the verification team during the on-site visit. All evidences^{GR//LOG/} are clearly identifiable and assessed to be correct. It could be evidenced^{/BR/} that the monitoring system ensures for continuous (except routine breakdowns or outage) operation. For the considered verification period, all indicators stated in the applicable monitoring methodology ACM0012 (Version 3.1) were correctly monitored and reported. Calibration of gross energy meter and auxiliary energy meter are carried out by Tespro Systems. Calibration of import Meter is carried by state electricity board covering the reported monitoring period were verified for their frequency and traceability to industry standards^{/CAL/}. Calibration records of all installed meter were checked and found OK, the calibration is carried out by the State electricity board and Tespro Systems as per electricity standards for each of the equipment. In case of failure of meters, it will be changed immediately by the back up meters. During the monitoring period there is no change in the meters^{/CAL/}. The meters are calibrated as per the national standards every year as per the requirements of UNFCCC (EB 41, Annex 20). The calibration records^{/CAL/} for the meters were checked by the verification team and found to be correct.

Nevertheless, CAR 3.3.1, CAR 3.3.2 and CL 3.3.1 has been raised.

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CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
CAR 3.3.1 The monitoring parameters (EG _y , EG _{Aux} , EG _{Aux-fromGrid}) mentioned in section 7 of the monitoring report are not inline with validated monitoring plan. Correction requested.	/MR/ /VCS-PD/	Based on the validated monitoring plan section 7 of the revised monitoring report was corrected.	/MR/ /VCS-PD/	The monitoring report has been revised based on the validated PD which is found to be correct. Hence CAR 3.3.1 is closed.
CAR 3.3.2 The PP is asked to provide all the details about calibration of meters covering the entire monitoring period. Also the calibration detail of the state electricity board meter is missing in the monitoring report.	/MR/ /VCS-PD/ /CAL/	All the calibration meter details including state electricity board meter was submitted to the verifier. The same was included in the revised monitoring report.	/MR/ /VCS-PD/ /CAL/	The calibration details of the all monitoring instruments has been provided in the revised monitoring report. Hence CAR 3.3.2 is closed.
CL 3.3.1 MR may contain explanation to differences between estimated and actual VERs.	/MR/ /VCS-PD/ /GR/	As per the validated PD the Plant Load Factor for this project activity is 80%. Net Electricity generated from this project is 50,458 MWh/yr. But actual generation is 1,27,600 MWh for four year (28/03/2006 to 27/02/2010). The waste heat from sponge iron kiln is	/MR/ /VCS-PD/ /GR/	The emission reductions reported and verified for the first periodic verification is less than the estimated in the validated PD. This has happened due to the fluctuation in quantity and quality of the steam generated in the WHRB. However,

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CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
		the source for power generation in this project activity. The quantity and quality of steam generated from the WHRB is not constant over the year. Thus the power generated from this project activity was reduced. The power generation depends upon the parameters such as temperature and volume of hot flue gases. The low temperature of hot flue gases affects the temperature of steam generated at the Super heater coils resulting of this power generation was reduced. The same was included in the revised Monitoring Report.		this has no effect either on the baseline or on the additionality. Hence CL 3.3.1 is closed.

3.4 Accuracy of Emission Reduction Calculations

The value of the emission reductions depends on the net electricity generated by the project activity. The

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baseline emissions are based on the net electricity supplied by the project. The project emissions are zero as there is no use of any fossil fuel. Leakage is considered as zero as per the methodology. Therefore the baseline emission equals the emission reductions. The total net electricity generated^{/GR/} by the project activity during the monitoring period is 122245331.2 KWh. The emission reductions were calculated correctly on the basis of the approved CDM baseline and monitoring methodology ACM 0012 Version 3.1, formulae given in the monitoring report^{/MR/} and validated PD^{/VAL-PD/}. Project proponent provided the spreadsheets^{/ER/} used for calculating the emission reductions including the algorithms used in the calculations. The calculations of above parameters were checked in the spreadsheets and found to be correct. This information is taken from statements^{/GR/} issued by state electricity board and log sheets^{/GR/} maintained by the monitoring personnel. The verification team crosschecked the emission reduction calculations by state electricity board statements and daily/monthly log sheets which were found to be correct and accurate. There are no possible transposition errors between data sets since the monitoring of all the parameters required for calculation of net electricity generated are through calibrated electronic meters with high accuracy. Also all the recorded data are verified by the team of project proponent as described monitoring plan of validated PD. The default data used in the monitoring calculations is the combined margin grid emission factor. The values of the grid emission factor 0.85573754 CO₂e/MWh is calculated based on the data from the publicly available database of the Central Electricity Authority (CEA) in line with tool provided in methodology and the same is considered to be appropriate by the verification team.

CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
CAR 3.4.1 The emission factor used in the emission reduction calculations is not inline with the validated	/MR/ /VCS-PD/	As per the validated PD the emission factor was corrected in the revised Monitoring	/MR/ /VCS-PD/	The baseline emission factor 0.85573754 tCO ₂ /MWh has been taken from the validated PD is appropriate

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CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
PD.Correction requested in this context		report.		and acceptable which is fixed ex-ante throughout the crediting period. Hence CAR 3.4.1 is closed.
CAR 3.4.2 Emission reduction calculations are not inline with Validated PD .Correction Requested in this context.	/MR/ /VCS -PD/	Emission reduction calculation was corrected in the revised Monitoring Report.	/MR/ /VCS- PD/	Emission reduction calculation has been revised based on the validated PD and same has been found correct.Hence CAR 3.4.2 is closed.

All the figures as per the monitoring plan were cross-checked by the verification team against basic monitored data^{/GR/} and the calculations were found to be correct.

The closure of all the CARs and CRs issued above resulted in change of net ER 104,586tCO₂e.

3.5 Quality of Evidence to Determine Emission Reductions

Calibration procedures and test reports^{/CAL/} of the all online energy meters covering the reported monitoring period were verified for their frequency and traceability to industry standards. Calibration of gross energy meter and auxiliary energy meter are carried out by Tespro Systems and calibration of import Meter is carried by state electricity board officials. The energy meters have been calibrated once in year which is in line with the requirement of the UNFCCC EB 41 Annex 20.The calibration certificates^{/CAL/} for entire vintage were verified by the verification team. However the verification team found that calibration has been delayed for import energy meter. For the delayed calibration the import power has been corrected based on the EB 52 Annex 60.

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Nevertheless CAR 3.5.1 was raised and successfully closed based on the revised monitoring report and the emission reduction calculation sheet.

CAR/CR/FAR	Reference	Summary of project owner response	Revised sections (as applicable)	Conclusion
CAR 3.5.1 During verification of the calibration records it was found that the calibration has not been done for the import energy meter as specified calibration interval mentioned in the validated PD. Clarification requested in this context.	/MR/ /VCS- PD/ /ER/ /CAL/ /	As per the EB 52 annex 60 "Guidelines for assessing compliance with the calibration frequency requirements" the data of import meter is revised with the accuracy class of the corresponding energy meter. Since the calibration report states no error, as per the guidelines para 4 (a) the maximum permissible error (accuracy class) of the energy meter is applied to the delayed periods. Power: $\text{Import} = \text{Import} + (\text{Accuracy class of energy meter} * \text{Import})$	/MR/ /VCS- PD/ /ER/ /CAL/	The import value has been corrected in the revised emission reduction calculation sheets as per EB 52 annex 60. "Guidelines for assessing compliance with the calibration frequency requirements" for the delayed calibration period. The calculated values has been verified and found to be conservative. Hence CAR 3-5.1 is closed.

3.6 Management and Operational System

Proper data management including of data acquisition, aggregation and data management system is being followed in project activity. All records needed for monitoring are archived in line with the requirements of the validated monitoring plan^{/VCS-PD/}. No significant, lack of evidence and missing data were detected during on-site verification. It is evident from the monitoring data that the monitoring system ensures for continuous operation, no major break down has been found during the monitoring period. The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy. All necessary monitored and measured raw data were checked during on-site verification by the verification team. The data pertaining to the monitoring are maintained in identified records for the entire monitoring period. All the data is in compliance with the figures stated in the monitoring report. Hence the quality of evidence provided is found to be credible and in line with monitoring plan of the validated PD^{/VCS-PD/}

The allocation of responsibilities is documented in a written form and is followed as described in the validated PD^{/VCS-PD/}. As per the PD the general manager is responsible for routines archiving of data, documentation and calibration. The same has been verified through interview of monitoring personnel and the project proponent during onsite visit by the verification team. The monitoring personnel of OEG India Private Limited at the project site are well trained personnel, consisting of combination of diploma and engineers for operation and in charge for power generation process. The Qualification certificates^{/CC/} and training records for the monitoring personnel's were checked by the verification team during the on-site verification. The project have separate energy meters for recording auxiliary consumption and gross energy generation. Thus parameters are noted in the log sheet for every hour. The Monitoring data of the equipments are recorded by the Technicians/ supervisors and the data are submitted to the shift incharges. The shift incharges report daily to the general manager of the OEG India private Limited. The general manager submits a monthly report to the management. The management is reviewed the details provided by the O&M persons and take necessary steps for smooth operation & monitoring of the project activity. All monitored data are archived in Physical and Electronic form. The data

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will be kept for the whole crediting period and additional 2 years as given in the monitoring report^{/MR/}.

No CAR/CL has been raised

4 Verification conclusion

The scope of this verification covers the determination of voluntary greenhouse gas emission reductions generated by the above mentioned project. The verification is based on, validation PD^{/VCS-PD/}, Validation report^{/VR/}, rt and VCS 2007.1 standard/VCSA rules, monitoring report and supporting documents made available to the verifiers by the project proponent.

As a result of the verification, the verifier confirms that:

- All operations of the project are implemented and installed as planned and described in the project design document. The monitoring system is in place and functional. The installed equipment essential for generating emission reductions runs reliable.
- The monitoring plan is in accordance with the applied approved CDM methodology, i.e. ACM 0012 Version 3.1.
- The installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- The monitoring system is in place and functional.

The project has generated GHG emission reductions

As a result of the monitoring period, the verifier confirms that GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. Also all the documents checked during on-site visit and verification process will be kept confidential and will not be disclosed at any time other than the Project Proponent consent as required by VCSA

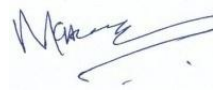
Monitoring period: 28/03/2006 to 27/12/2009 (both days included)

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Verified emission reductions generated in the above mentioned monitoring period:

Year	Emission Reductions (tCO ₂)
2006	22115
2007	28045
2008	24584
2009	29842
Total	104586

Bangalore, 27.04.2011



Ma.Paa.Purachikkanal
TÜV NORD JI/CDM Certification
Program
Verification Team Leader

Essen, 27.04.2011



Rainer Winter
TÜV NORD JI/CDM Certification
Program
Senior Assessor

Annexure 1:

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
CR	Clarification Request
ER	Emission Reduction
GHG	Greenhouse gas(es)
KV	Kilo Volt
Kwh	Kilo watt hour
MR	Monitoring Report
MP	Monitoring Plan
MW	Megawatt
MWh	Megawatt Hours
PD	Project Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate
VER	Voluntary Emission Reduction
TNEB	Tamilnadu Electricity Board

Annexure 2:

Documents referred during the course of verification:

Reference	Documents																																				
/CAL/	Calibration certificates for the energy meters during the monitoring period.																																				
	<table><tr><th>Description</th><th>Generation Meter</th><th>CPP-Auxiliary Meter</th><th>Grid-Auxiliary Meter</th></tr><tr><td>Make</td><td>SOCOMEK</td><td>ENERCON</td><td>L&T</td></tr><tr><td>Accuracy Class</td><td>1.0</td><td>0.5</td><td>0.5</td></tr><tr><td>Serial No.</td><td>050332069</td><td>63174/134-5104</td><td>03122801</td></tr><tr><td>Date of Calibration</td><td>19/01/2006</td><td>19/01/2006</td><td>26/12/2006</td></tr><tr><td></td><td>14/12/2006</td><td>14/12/2006</td><td>04/03/2008</td></tr><tr><td></td><td>27/11/2007</td><td>27/11/2007</td><td>20/04/2009</td></tr><tr><td></td><td>21/11/2008</td><td>21/11/2008</td><td></td></tr><tr><td></td><td>22/11/2009</td><td>22/11/2009</td><td></td></tr></table>	Description	Generation Meter	CPP-Auxiliary Meter	Grid-Auxiliary Meter	Make	SOCOMEK	ENERCON	L&T	Accuracy Class	1.0	0.5	0.5	Serial No.	050332069	63174/134-5104	03122801	Date of Calibration	19/01/2006	19/01/2006	26/12/2006		14/12/2006	14/12/2006	04/03/2008		27/11/2007	27/11/2007	20/04/2009		21/11/2008	21/11/2008			22/11/2009	22/11/2009	
	Description	Generation Meter	CPP-Auxiliary Meter	Grid-Auxiliary Meter																																	
	Make	SOCOMEK	ENERCON	L&T																																	
	Accuracy Class	1.0	0.5	0.5																																	
	Serial No.	050332069	63174/134-5104	03122801																																	
	Date of Calibration	19/01/2006	19/01/2006	26/12/2006																																	
		14/12/2006	14/12/2006	04/03/2008																																	
		27/11/2007	27/11/2007	20/04/2009																																	
		21/11/2008	21/11/2008																																		
	22/11/2009	22/11/2009																																			
/GR/	• Statements certified by TNEB covering the monitoring period. • Log sheets maintained by the operating Personnel's (Daily &Monthly)																																				
/O&M/	Operation and maintenance contract between SRPIL and OEG Energy India Private Limited dated on 01/06/2005.																																				
/PPA/	Wheeling Agreement between SRPIL and state electricity board dated on 12/12/2005.																																				
/TPR/	Report Prepared by Climate SD services for Technical assessment on capping of baseline emissions for the 8mw waste heat recovery boiler unit"																																				
/SC/	Commissioning certificates of boiler from suppliers of the boiler dated on 16/10/2005																																				
	Commissioning certificates of boiler from suppliers of the Turbine dated on 18/10/2005																																				

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	Grid synchronization Letter issued by the state electricity board dated on 21/12/2005 Consent for operation from Tamilnadu Pollution Control Board dated . 10/07/2009(latest)
/TD/	Technical specifications of Boiler and TG set Waste Heat Recovery Boiler: Type : Natural Circulation, Water Tube Boiler Steam Output : 36 Tonnes per Hour Steam Pressure : 67 Kg/ Cm2 Steam Temperature : 485°C Make : Cethar Vessels Limited Turbine: Capacity : 8 MW Inlet Steam Pressure : 64 Kg/Cm2 Inlet Steam flow : 33.90 Tonnes per Hour Inlet Steam Temperature : 480 °c RPM : 7555 Make : ABB Limited Alternator: Make : BHEL Capacity : 8 MW Generator Voltage : 11 KV Frequency : 50 HZ Full Load Current : 525 Amps Phase : 3 RPM : 1500 Connection : Star
/ORG/	Organisation chart of Sree Rengaraaj Power India Private Limited.
/LOG/	Log sheets related to Steam generation and other parameters.
/BR/	Breakdown details (Scheduled breakdown and forced breakdown)
/MR/	- Monitoring Report Version 1.0 dated 05/02/2010 - Monitoring Report version 2.0 dated 02/07/2010
/ER/	- Emission reduction calculation sheet corresponding to MR1 dated 05/02/2010 - Emission reduction calculation sheet corresponding to MR2 dated 05/02/2010

Background investigation and assessment documents

Reference	Document
/ACM0012/	"Consolidated baseline methodology for GHG Emission Reduction from waste energy recovery projects " Version 3.1
/IPCC-RM/	2006 IPCC Guidelines for National Greenhouse Gas Inventories
/VCS/	Voluntary Carbon Standard 2007.1
/VCS-PD/	Validate Project Document version no 2 dated 07/09/2009
/VR/	Validation Report for the project activity version 1.0 dated 29/10/2009
/VAL-XCS/	Validated Excel Calculation sheets for baseline determination linked with the registered PD.

Websites used

Reference	Link	Organisation
/CEA/	www.cea.nic.in	Central Electricity Authority
/UNFCCC/	http://cdm.unfccc.int	UNFCCC
/VCS/	http://www.v-c-s.org/	VCS

Interviewed Persons

Reference		Name	Organisation / Function
/IM01/	☒ Mr. ☐ Ms.	S.Shyam Sundar	Director,SRPIL
/IM01/	☒ Mr. ☐ Ms.	S.Pradeep Kumar	Director,SRPIL
/IM01/	☒ Mr. ☐ Ms.	C.Sathiya Seelan	Plant Manager,SRPIL
/IM01/	☒ Mr. ☐ Ms.	G.Palanisamy	Electrical Engineer,SRPIL

VCS 2007.1 Final Verification Report for the project entitled "8MW Waste Heat Recovery Based Power Project by Sree Rengaraaj Power India Private Limited"

Reference		Name	Organisation / Function
/IM02/	☒ Mr. ☐ Ms	K.Vijayarajan	Director,Abi Energy consultancy Pvt Ltd