VCS VERIFICATION REPORT

Bugoye 13.0 MW Run-of-River Hydropower Project

Document Prepared By SGS Climate Change Programme, SGS United Kingdom Ltd

SGS United Kingdom Ltd
SGS House
217-221 London Road
Camberley Surrey
GU15 3EY
United Kingdom

Project Title	Bugoye 13.0 MW Run-of-River Hydropower Project
Version	3
Report ID	CCP.VOL0889 VCS

Report Title	Bugoye 13.0 MW Run-of-River Hydropower Project
Client	Tronder Power Ltd.
Pages	40
Date of Issue	28/03/2013
Prepared By	SGS United Kingdom Ltd
Contact	Climate Change Programme SGS United Kingdom Ltd SGS House, 217-221 London Road, Camberley Surrey, GU15 3EY, United Kingdom Phone: +44 (0) 1276 697810, Email:ukclimatechange@sgs.com
Approved By	Harsh Raval
Work Carried Out By	Shivaji Chakraborty: Lead Assessor/ Team Leader/ Expert TA 1.2(Hydro) Sauvik Banerjee: Assessor Philip Abuor: Local Assessor

Summary:

SGS United Kingdom Ltd has performed the verification of the project Bugoye 13.0 MW Run-of-River Hydropower Project. The verification includes confirming the implementation of the monitoring plan of the registered PDD UNPA: 3017. The verification includes confirming the implementation of the monitoring plan of the Monitoring Report Version 04 dated 06/03/2013 and the application of the monitoring methodology as per AMS I.D version 15, valid from 30/10/2009. A site visit was conducted to verify the data submitted in the monitoring report.

The project activity is a grid connected 13.0 MW run of the river project by Tronder Power Limited which utilizes the water naturally available in the river Isya, located in the Kasese District, Western Uganda. The 13.0 MW renewable power generated is exported to the national grid of Uganda. The main objective of the project is to produce clean electrical energy in a sustainable manner, optimizing the utilization of a renewable benign resource is therefore met.

The project involves installation of rated capacity of 2 x 7.228 MW Francis (Horizontal) type reaction turbines. The water conductor system leading to the power house finally releases the water after power generation through the installed turbo generator system through the tail race to the main course of the river. Currently, the project activity is operational and exporting the generated electricity to the national grid of Uganda. The main objective of the Uganda small hydroelectric project of producing clean electrical energy in a sustainable manner, optimizing the utilization of a renewable resource which displaces equivalent carbon intensive power from the grid system and reduce of GHG emissions. The project activity uses naturally available resource, water to generate electricity which would otherwise have been generated by fossil fuel dominated grid connected power plants leading to GHG emissions. The GHG emission reduction is thus achieved which is real, measurable and verifiable on account of the implementation of the project activity.

The report describes a total of one finding which include:

- 05 Corrective Action Requests (CARs);
- 01 Clarification Requests (CLs);
- 00 Forward Action Requests (FARs); and

All findings have been closed satisfactorily.

SGS confirms that the project is implemented in accordance with the validated VCS Project Description. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and validated project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in **51,177 tCO2e** emission reductions during period **07/10/2009 up to 31/12/2010** (both days inclusive).

Abbreviations

BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DG	Diesel Generator
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MWh	Mega Watt hour
PDD	Project Design Document
PE	Project Emissions
PP	Project Participant
PPA	Power Purchase Agreement
TPL	Tronder Power Limited
UETCL	Uganda Electricity Transmission Company Limited
UNFCCC	United Nations Framework Convention on Climate Change
VCSA	Verified Carbon Standard Association
VCS	Verified Carbon Standard
VCS PD	VCS Project Description
VCUs	Verified Carbon Units

Table of Contents

1 INTRODUCTION

1.1 Objective

SGS United Kingdom Ltd has been contracted by Tronder Power Ltd to perform an independent verification of its project Bugoye 13.0 MW Run-of-River Hydropower Project against VCS Standard Version 3.3[/8/]. The verifiers have reviewed the GHG data collected to date for the period between 07/10/2009 and 31/12/2010 (Both days inclusive).

The purposes of this verification exercise are, by review of objective evidence, to independently review:

- Whether the project has resulted in emission reductions as declared by the organisation or GHG project's GHG assertion;

- The data reported are accurate, complete, consistent, transparent and free of material error or omission

1.2 Scope and Criteria

This engagement covers verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of Bugoye 13.0 MW Run-of-River Hydropower Project.

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. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of assurance

The level of assurance of the verification report is reasonable assurance engagements as selected by the Client. Materiality for the project is 5%.

1.4 Summary Description of the Project

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

Title of Project Activity:	Bugoye 13.0 MW Run-of-River Hydropower Project
Project ID	CCP.VOL0889
Monitoring Period Covered in this Report	07/10/2009 to 31/12/2010 (Both days inclusive).
Project Proponent	Tronder Power Ltd
Location of the Project Activity:	The hydropower plant is located on the river Mubuku, in the Kasese District of the Western region of Uganda. Project coordinates: Diversion intake: 0 20'02.30''N; 30 04'27.76''E

	Intake: 0 19'46.58''N; 30 04'16.27''E Forebay: 0 18'51.93''N; 30 05'43.25''E Power station: 0 18'25.80''N; 30 05'57.57''E Tailrace outlet: 0 18'27.94''N; 30 06'07.20''E

The project activity is a small hydro based renewable energy generation project set up across the run of the river which is harnessing the potential of the natural resource abundantly available. The project activity involves the implementation of two turbines with total installed capacity of 13 MW and evacuating power to the nearest substation, Nkenda and then finally connected to the national grid of Uganda. The project activity is resulting in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

This project activity is registered under CDM (UN Ref. 3017). In line with the requirement under para 3.8.2 of the VCS-3 standard version 3.3/8/, validation of the project activity shall be completed within 2 years of the project start date. As per VCS standard, the start date of the project activity is 07/10/2009/26/ and the project activity was registered under CDM on 01/01/2011/1/. Hence, it is concluded that the validation was completed as per VCS-3 requirements. As, the project activity was registered with the UNFCCC on 01/01/2011/1/; hence VCS monitoring period considered for this verification of the project activity is 07/10/2009 to 31/12/2010 (both days included).

The PP hasn't applied the project activity to any other GHG program for the period considered as above; hence not registered under any other GHG program for the said monitoring period of 07/10/2009 to 31/12/2010 (both days included) as the project activity will continue to take CDM benefit from 01/01/2011 onwards. The VCS specific rules and validation requirements set by VCS are also taken care in the Gap Validation under VCS standard version 3.3/8/. Thus it is concluded that all the rules and validation requirements set by VCS have been complied.

2.2 Validation Findings

2.2.1 Gap Validation

This project activity is registered under CDM on 01/01/2011[/1/]. A gap validation is required as per the section 3.11.8 of the VCS standard version 3.3[/8/] and was conducted based on the relevant information provided on the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description template filled in by the PP and these sections are assessed as required in the requirements specified under para 3.11.8 of the VCS standard version 3.3[/8/] as the project activity is being registered under an approved GHG program i.e. CDM. It was verified that the PP has correctly applied the latest VCS PD template compliant with VCS 3 rules as verified from the VCS website.

The section-wise assessments for the information provided in the VCS PD are described below.

The cover page
The project title provided on the cover page of the gap validation VCS PD has been validated to be correct and the same was checked for consistency from the CDM project page (http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view) as well as the HCA obtained by the PP.

The PP name and contact information of the PP is found to be mentioned correctly. This was validated from the Annex 1 of the registered CDM PDD[/1/] as well as HCA obtained by the PP.

Section 1.1
The brief project description provided under section 1.1 was validated to be appropriate. The project description in para 1 was validated through the section A.2 of the registered CDM PDD[/1/]. Further the same was also cross checked during the site visit assessment.

For the information provided in para 2 of the section 1.1, the project registration information was correctly mentioned as validated from the CDM project page (UNFCCC ref 3017)[/1/]. The commissioning date was also validated to be correctly mentioned, this was cross checked from the commissioning certificate[/12/].

Section 1.2
The project category (mentioned as Type I), details of the applied methodology (mentioned as AMS I. D version 15) has been cross checked from the section B.1 of the registered CDM PDD[/1/] as well as CDM project page (UNFCCC ref 3017). Further, confirmation from PP[/26/] that the project activity is not a part of a grouped project has been validated referring to sections A.2, A,4.2 as well as A.4.5 of the registered CDM PDD[/1/] while it was also checked during the site visit assessment.

Section 1.3
The PP name and contact information of the PP is found to be mentioned correctly. This was validated from Annex 1 of the registered CDM PDD[/1/] as well as the HCA obtained by the PP.

It was also validated that the PP has correctly mentioned section B.7.2 of the registered CDM PDD[/1/] for roles and responsibilities of the PP apart from project ownership specific roles.

Section 1.5

The project start date is assessed to be correctly mentioned (i.e. 07/10/2009)/12/ in the VCS PD/23/ and is date of commissioning of the project activity i.e. synchronization to National Grid of Uganda. The commissioning date was cross checked from the commissioning certificate issued by UETCL to PP vide ref no: UETCL/MCS/IPP-11 dated 02/02/2011/12/. The start date of the project activity is deemed appropriate referring to the definition of start date stipulated under section 3.8.1 of the VCS standard version 3.3/8/.

Section 1.6

The section 1.6 of the VCS PD/23/ has been assessed to be correctly applying the project crediting period starting from the project activity start date/12/ and spreading across 10 years. The selected VCS crediting period is validated to be in compliance to the requirement under section 3.11.6 of the VCS standard version 3.3/8/.

It was noted that the project was registered under CDM on 01/01/2011, after which PP has started claiming CDM benefit. Thus the first monitoring period applied by PP is from 07/10/2009 to 31/12/2011 which is in not overlapping the CDM crediting period which starts from 01/01/2011/1/. The same was cross-checked with the UN webpage (http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view). This is appropriate and thus accepted by the assessment team.

Section 1.7

The section 1.7 of the VCS PD is assessed as correctly mentioning the value of the estimated emission reductions of **51,074 tCO_2e** per annum. This was cross checked with the section A.4.3 of the registered CDM PDD/1/ as well as the CDM project page (UNFCCC ref 3107). The project activity neither falls under the category of 'projects' referring to the guidance provided under section 3.9.1 of the VCS standard version 3.3, which is rightly specified in the VCS PD/23/.

Section 1.9

The project activity is located at Kasese District, Uganda. The project location information provided under section 1.9 was assessed as correct. This was validated through the section A.4.1.4 of the registered CDM PDD/1/. Further the same was also cross checked during the site visit assessment.

Section 1.10

It was ensured during the CDM validation that the project activity was a Greenfield project. The same is also specified under section A.2 of the registered CDM PDD/1/. This was cross checked from the validation assessment provided under section 4.3 of the CDM validation report. Thus, the information provided under section 1.10 of the VCS PD/23/ is accurate and hence accepted.

Section 1.12

In this context the PP has also submitted undertaking/26/ covering specific VCS requirements under para 1.12 of the VCS PD/23/. The relevant sub sections were assessed as below.

Section 1.12.1

The project ownership was validated from the information provided on the UNFCCC CDM project page (UNFCCC ref 3017) as well as the HCA available on the UNFCCC website (http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view)/1/. Further, the ownership and hence right to

avail the use of the VCUs was also confirmed by PP through submitted undertaking[/26/]. The project ownership was also checked from the commissioning certificates[/12/] and PPA[/7/]. This is found to be in line with the requirements stipulated under clauses 1 and 2 of the section 3.11.1 of VCS standard version 3.3[/8/].

Section 1.12.2

The possibility of any consideration of the project activity and hence the VCUs generated for the purpose of 'Emission Trading Programs and Other Binding Limits' (such as mandatory laws/emission caps) was also checked and no involvement of such commitment was confirmed by the PP through submitted undertaking[/26/]. This was also cross checked with the voluntary participation clause in the HCA received from the host country (Uganda). This is found to be in line with the requirements stipulated under section 3.11.2 of VCS standard version 3.3[/8/].

Section 1.12.3

The possibility of participation of the project activity and hence double counting of the VCUs in other GHG programmes was also checked and the PP confirmed through the submitted undertaking that no double counting is envisaged in future for the VCUs claimed under VCS. It was also noted that the project was registered under CDM on 01/01/2011[/1/], after which the PP has started claiming CDM benefit. Thus the first monitoring period applied by the PP is from 07/10/2009 to 31/12/2010 (both the days included) which is in not overlapping the CDM crediting period which starts from 01/01/2011. This is found to be in line with the requirements stipulated under section 3.11.2 of VCS standard version 3.3[/8/].

Section 1.12.4

The possibility of the project activity in some other environmental credits is not possible as cross-checked from the credit schemes available in Uganda other than CDM and hence is accepted.

Section 1.12.5

The project activity has not been rejected in any other GHG program as confirmed through the submitted undertaking as well as UNFCCC CDM project page (UNFCCC ref 3017)[/1/]. Thus, the section from VCS PD is not applicable here.

Section 1.13

The relevant points applicable to the project activity have been discussed by the PP in the gap validation VCS PD which cover

- Leakage related information: Leakage is not assessed to be applicable to the project activity due the excess biomass availability in the region referring to section 4.8 of the CDM validation report[/1/], section B.6.1 of the registered CDM PDD[/1/] and also requirement under the para 15 of applied methodology AMS I. D version 15.0.
- Commercially sensitive information: the PP has confirmed in the VCS PD that no commercially sensitive information is deemed.

It was thus concluded that the gap validation VCS PD[/23/] submitted by the PP is sufficient and hence accepted.

2.2.2 Methodology Deviations

Not applicable as no methodological deviations are found. Monitoring plan implemented at project site is in line with the registered CDM PDD[/1/] as well as applied methodology[/5/] for the project activity.

2.2.3 New Project Activity Instances

Not applicable as no new project activity instances are included in the project activity. During site visit to the project activity, it is confirmed that the implementation of the project activity is in accordance with the project description mentioned in registered CDM PDD[/1/].

2.3 Validation Conclusion

Since the project activity is registered under CDM which is an approved GHG program by VCSA, only gap validation has been carried out as per the requirements of the sections 3.11.8 of the VCS standard version 3.3[/8/]. Thus no further assessment with regards to the validation is required for the project activity. It is concluded that all the rules and validation requirements set by VCS standard version 3.3[/8/] are already taken care at the time of CDM validation of the project activity followed by gap validation under VCS standard version 3.3[/8/].

3 VERIFICATION PROCESS

3.1 Method and Criteria

SGS' approach to the verification is a two-stage process.

In the first stage, SGS 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.

At the end of this stage, SGS produced a Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.
Using the Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the monitoring report. This verification report describes the findings of this assessment.

3.2 Document Review

The CDM PDD[/1/], VCS PD [/23/] and the monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 5 of this report

3.3 Interviews

As per the audit plan members of the assessment team went on site and interviewed[/11/] the concerned person as per following table:

Date	Name	Position	Short Description of Subject Discussed
27/06/2012	Annicent Busingye	General Manager (TPL)	Verification of monitoring and data handling procedure (reporting, recording and data archiving)
27/06/2012	Annicent Busingye, Hesam Darami	General Manager (TPL), Consultant (Carbon Limits)	Site visit: Inspection of infrastructure and equipments, calibration, maintenance, personnel training. Detailed review of project activity and verification of monitoring procedures implementation, Monitored data verification. Interview of persons involved in project monitoring

3.4 Site Inspections

As part of the verification, the following on-site inspections have been performed by the assessment team:

Location: Republic of Uganda, Kampala, Kasese (Western Region of Uganda)	
Date: 27/06/2012 to 29/06/2012	
Coverage:	**Source of Information / Persons Interviewed**
Site visit: Inspection of infrastructure and equipments, calibration, maintenance, personnel training. Detailed review of project activity and verification of monitoring procedures implementation, Monitored data verification. Interview of persons involved in project monitoring	Annicent Busingye, General Manager (TPL)

3.5 Resolution of Any Material Discrepancy

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

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a Clarification Request (CL) specifying what additional information is required.

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

The verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;

The verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

FARs may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project was implemented and equipment installed as per the project description provided in the in the PDD[/1/] registered on the UNFCCC webpage on 01/01/2011[/1/];

The current monitoring period is the first voluntary verification prior to the registration of the CDM project activity. The verification covers the period of 07/10/2009 to 31/12/2010 (both the days included). The project got registered under CDM on 01/01/2011. The same was verified from the UNFCCC webpage[/1/]: http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view. The project activity was commissioned on 07/10/2009 and this has been checked with commissioning certificate issued by UETCL ref no: UETCL/MCS/IPP-11 dated 02/02/2011 mentioning the date of commission as 07/10/2009[/12/]. The project activity is well stabilised and in running condition as observed during on-site verification. It was confirmed during the on-site visit that the project activity has been implemented and operated as per the registered PDD[/1/] and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place. The monitoring report version 5[/3/] dated 26/03/2013 has been checked for consistency with the registered PDD[/1/] and was found to be consistent. The PP has considered the monitoring parameters in the monitoring report[/3/] as per the registered monitoring plan. The recording frequency and completeness of the data for the monitoring period have been checked and it is found to be appropriate as per the registered monitoring plan[/1/].

The locations of the monitoring instruments i.e. energy meters have been checked and confirmed during the site visit to the project activity conducted during the period from 27/06/2012 – 29/06/2012. The same is found to be appropriate and consistent with the registered PDD[/1/].

Comparison of actual emission reductions with the same projected in the registered PDD:

As per the registered PDD[/1/], the estimated annual emission reduction achievable from the project activity is 51,074 tCO_2. The monitoring period covers 1 year, 2 months and 25 days and the actual emission reduction achieved and claimed for the period is 51,177 tCO_2. The *ex-ante* estimation of emission reductions was 62,967 tCO_2 per annum. However, for the current monitoring period from 07/10/2009 to 31/12/2010, the emission reductions at actual was found to be 51,177 tCO_2 which is 18.72% less than the estimation done for the same period (07/10/2009 to 31/12/2010) based on the emission reduction values in the registered PDD[/1/]. The same is attributable to the fact of the periodic shutdown that the plant went through during the current monitoring period. The total downtime during this monitoring period is 2521.2 hours and 4249.4 hours for TG1 & TG2 respectively. This has been checked with plant log book / generation data[/15/] during the on-site verification. The down time particulars for both the units for the current monitoring period were checked against the shut down details[/18/] reported in the plant log sheets maintained at the generation end and found be reported correctly. The details of the downtime has also been included in the revised monitoring report[/3/] which was found consistent with the plant log books[/15/] and hence accepted.

The verification team confirms that the monitoring has been carried out in accordance with the approved methodology AMS I.D version 15[/5/], which was applied to the project activity. This was found to be appropriate and it is accepted.

Discussion on CAR/CL:

CAR01 was raised for following issues:

- The PP was requested to clarify the inconsistency observed in the title of the project activity as mentioned in the initial version of the MR as compared to the UNFCCC webpage: http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view and the registered PDD.

- The PP was also asked to clarify the inconsistency observed on the commissioning date mentioned in the initial MR[/2/].

- The PP was requested to clarify further the basis of calculation of 6,308 annual operating hours, and also the estimation of 82,000 MWh. Further, the make and supplier of the Turbine and Generator was not included in the MR/2/.

- The date of the MR, version 03 was not correct.

- The MR, version 03, section 1.4 was not as per the VCS MR guidance.

- The MR template and formatting was not followed consistently.

- Please clarify the duration of the import reading taken at the shoulder period in the ER calculation sheet.

In response,

- The PP had revised the MR/3/ and the title of the project activity was corrected and found consistent with the project title mentioned in the registered PDD/1/ and UNFCCC web-page: http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view I.

- The date of commissioning found to be correctly included in the revised VCS MR 03/3/, page 4 which was checked and found consistent with the commissioning certificate issued by Uganda Electricity Transmission Company Ltd, reference: UETCL/MCS/IPP-11 dated 02/02/2011 mentioning the date of commissioning as 07/10/2009/12/ and hence accepted.

- The operating hours mentioned and explained in the revised VCS MR 03/3/, page 6 is found justified and found consistent with the plant log sheets checked during the on-site verification site visit by the assessment team. The revised MR/3/ was checked and found to have included the name of the manufacturer and supplier for the turbine and the generator correctly and hence accepted. The revised VCS MR 03/3/, page 3 under section 1.1 was checked and found to have included the name of the manufacturer and supplier for the turbine and the generator and hence accepted.

- The date was checked and found to be correctly applied in the revised MR, version 4 dated 06/03/2013 and hence is accepted.

- Section 1.4 of the revised monitoring report, version 04, dated 06/03/2013 was checked and was found to be filled as per the VCS MR, version 3.2 guidance and hence is accepted.

- The template and formatting was checked throughout in the revised monitoring report, version 4 dated 06/03/2013 and was found to be correctly applied and hence is accepted.

- The duration of the import reading taken at the shoulder period in the ER calculation sheet was corrected in the revised emission reduction computation sheet dated 06/03/2013 which was checked and found consistent with the daily readings and hence is accepted.

Thus **CAR01** was closed out as all the issues raised were closed satisfactorily.

The PP was requested to clarify the hourly details of shutdown of the power plan under section 5, single line diagram of the project with locations of the meter under section 2.1 of the monitoring report. The PP was further requested to clarify the date of September 2009 mentioned in section B.1 of the MR, when the project was commissioned on 07/10/2009 as per the Confirmation of Commercial Operations/12/ date (vide letter from UETCL dated 02/02/2011 Ref no. UETCL/MCS/IPP-11). **CAR 04** was raised in this regard.

In response, the hourly details of the shutdowns of the power plant were found to include in the Monitoring Report under section 5 (Additional Information). The downtime tables[/18/] include times when any outage happened during the monitoring period under consideration, the duration of every outage, the type of outage and the problem description. The single line diagram of the project with locations of the meter was found to be included under section 2.1 of the monitoring report, page 6. The revised MR was correctly updated the date of commissioning as 07/10/2009 in page 4 and found to be consistent with the commissioning report issued by UETCL[/12/] (vide letter from UETCL dated 02/02/2011 Ref no. UETCL/MCS/IPP-11) hence accepted thus **CAR 04** was closed out.

Monitoring of Parameters:

All parameters stated in the monitoring plan of the registered PDD[/1/] and the applied methodology has been fulfilled in the current monitoring report. All baseline emission parameters has been verified and found satisfactory. The discussion regarding each parameter has been elaborated in the further sections of this report.

The onsite verification of measurement records also substantiate consistency in recording and reporting of the monitored data.

The following parameters have been verified for current monitoring period:

Parameter related to Baseline emissions:

A. EGy: Net electricity supplied by the project to the grid

The Net electrical energy exported to grid from the project activity is monitored continuously from the main meter installed, sealed and maintained by TPL at the UETCL grid interconnection point. This is a bi-directional meter that measures the electricity export to the grid and electricity import from the grid. The net electricity is measured hourly by the main meter and recorded and archived electronically/paper monthly. The energy exported to the UETCL by the project activity are fed through the main feeder line at the grid interconnection point and a set of main and check meters are installed to measure the net electricity exported to the grid which is the main parameter to calculate the baseline emissions.

The Main meter is installed at the grid interconnection point followed by a check meter installed at the plant premise adjacently which was checked during the on-site verification. The details of the meters installed verified during the verification site visit and found to be correctly reported in the final version of the Monitoring Report[/3/].

The technical details of the respective monitoring equipments, the main and check energy meters installed side by side at the grid interconnection point as verified during the verification site visit are mentioned in the table below:

Monitoring equipments	Specification	Location	Calibration details
Main Meter	Make: CEWE Instrument AB Type: Cewe PrometerR MSR system: 3 elements, 4 wires Serial No: 1641801 Accuracy Class : 0.2s	Control Room	Initial test certificate, issued by issued by Cewe Instrument dated 10/07/2008/14/
Check Mater	Make: CEWE Instrument AB Type: Cewe PrometerR MSR system: 3 elements, 4 wires Serial No: 1641802 Accuracy Class : 0.2s	Control Room	Initial test certificate, issued by issued by Cewe Instrument dated 10/07/2008/13/

The main meter installed at grid interconnection point is sealed and maintained (tested and calibrated) by the PP (TPL), this fact has been cross checked with the relevant clause 6.1.1 mentioned in the Power Purchase Agreement/7/ dated 28/02/2008 signed between The Uganda Electricity Transmission Company (UETCL), the Grid authority and Tronder Power Limited (TPL), and found consistent.

As per the registered PDD/1/, page 36/62 under section B.7.2 the calibration frequency defined for both the main and check meters is on annual basis. The meters were installed in 2009 in the control room of the project activity and accordingly the test certificates of both the meters were issued on 10/07/2008/13//14/ by CEWE Instruments. However, due to the non-availability of the relevant expertise in Uganda to undertake the calibration of the said meters, the PP was unable to conduct the calibration as per the frequency mentioned in the registered CDM-PDD/1/.

The PP further carried out the calibration of both main and check meters on 26/09//2012/24//25/ by Norsk Accreditering which is a accredited calibrated agency of Norway and thus was accepted to be in compliance with the registered monitoring plan/1/. The credentials of Norsk Akkreditering as the Norwegian body for the accreditation/ calibration was also cross checked against the official company website (http://www.akkreditert.no/en/About_Us/), and found justified. The error as specified in the calibration certificates is less than the 0.2% for both main and check meters conforming their proper and accurate functioning and data recording for the current monitoring period 07/10/2009 to 31/12/2010 (both dates inclusive). Further, the calibration frequencies have been endorsed by the meter manufacturers (Mr. Lars Hansson, Senior Application Engineer & Sales Manager, CEWE instruments AB) via email/17/ SV: Meters at Bugoye, Uganda, dated 21/05/2012. As per the email verified by the assessment team, the frequency of calibration defined for both the meters by the meter manufacturers is six years. The detail of this is further discussed under **CAR03**.

The readings from the main energy meter installed at the grid interconnection point are recorded once in a month jointly by the authorised personnel of the TPL and UETCL in the presence of the authorised representatives responsible for monitoring from the Project Participant.

The value of net electrical energy exported to grid from the project activity are adopted directly from the monthly invoices and cross checked against the units certified in the record of bill/21/ payment towards power purchased from the project for the respective periods issued by UETCL for the purpose of the emission reduction calculation. The same value is also cross checked and found consistently adopted from the monthly records of bill/21/ payment towards power purchased from TPL issued by UETCL against invoice raised by TPL to the grid authority while calculating the baseline emissions and subsequently emission reductions in the emission reduction excel sheet/4/.

Parameters related to Project emissions:

A. $FC_{i,j,y}$: Quantity of diesel fuel used by site diesel generator during year y, tone/ year

The project activity uses diesel fuel used in the diesel generator for in-house consumption during grid failure which is being monitored continuously to calculate the project emissions. The project activity uses diesel fuel used in the diesel generator for in-house consumption during grid failure which is being monitored continuously to calculate the project emissions. The diesel consumption is being measured continuously with the help of level meter mounted on the DG set only. The level meter measures the volume of the diesel consumed for the current monitoring period. This is then multiplied with the density of the diesel to arrive at the quantity of diesel used in the project activity for the current monitoring period. In addition to this, there is also a run-counter which measures the run hours[/20/] of the diesel generator is being monitored with the help of display panel mounted on the DG set. This is in line with the registered PDD[/1/]. The diesel consumption was cross-checked against the purchase receipts/invoices[/22/] of the diesel purchase for the current monitoring period (07/10/2009 to 31/12/2010) and found consistent. As per the applied methodology[/5/], para 14, the project emissions for the run of the river hydro power project should be considered as zero. However, as per the registered PDD[/1/], page 31/62 and Annex 6, that the project emissions will be considered negligible if the project emissions is less than 1.0% of the baseline emissions. For the current monitoring period (07/10/2009 to 31/12/2010), the project emission is 0.061% of the baseline emissions which was also checked and found correct. Hence, the same was not included in the project emissions and hence is accepted.

B. $NCV_{i,y}$: Weighted average net calorific value of diesel fuel in year y, GJ per tone

The parameter measures the calorific value of diesel used in the project activity for in-house consumption. The 43.3 TJ/Gg is the default value of IPCC[/9/] as the calorific value of diesel considered for calculating the project emissions as per the registered PDD[/1/] which in turn used to calculate the project emissions from the project activity. For the project activity neither values from fuel supplier nor regional / national values were available, so the IPCC default values are used by the PP. IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.2 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories has been used by the PP. The same is checked and is found appropriate and thus accepted.

C. Weighted average CO2 emission factor of diesel fuel in year y, tCO_2/GJ

The parameter measures the emission factor of diesel used in the project activity for in-house consumption. The 7.48 tCO_2/ GJ default value of IPCC[/9/] is used as the emission factor of diesel considered for calculating the project emissions as per the registered PDD[/1/] which in turn used to calculate the project emissions from the project activity. For the project activity neither values from fuel supplier nor regional / national values were available, so the IPCC default values are used by the PP. IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories has been used by the PP. The same is checked and is found appropriate and thus accepted.

Discussion of CAR/CL:

CAR 03:

The PP was requested to clarify that why the calibration has not been conducted for the meters bearing Serial numbers: 1641802 (main meter) and 1641801(check meter) as per the frequency specified in the registered PDD[/1/] after it was installed in 2009 (initial calibration was done on 10/07/2008)[/13//14/]. **CAR 03** was raised in this regard.

In response, the PP justified that as per the registered PDD[/1/], page 36/62 under section B.7.2 the calibration frequency defined for both the main and check meters is on annual basis. The meters were installed in the control room and accordingly the test certificates of both the meters were issued on 10/07/2008[/13//14/] by CEWE Instruments. However, due to the non-availability of the relevant expertise in Uganda to undertake the calibration of the said meters, the PP was unable to conduct the calibration as per the frequency mentioned in the registered CDM-PDD[/1/]. The PP further carried out the calibration of both main and check meters on 26/09//2012[/24//25/] by Norsk Accreditering which is a accredited calibrated agency of Norway and thus was accepted to be in compliance with the registered monitoring plan[/1/]. The credentials of Norsk Akkreditering as the Norwegian body for the accreditation/ calibration was also cross checked against the official company website (http://www.akkreditert.no/en/About_Us/), and found justified. The error as specified in the calibration certificates is less than the 0.2% for both main and check meters conforming their proper and accurate functioning and data recording for the current monitoring period. Further, the calibration frequencies have been endorsed by the meter manufacturers (Mr. Lars Hansson, Senior Application Engineer & Sales Manager, CEWE instruments AB) via email[/17/] SV: Meters at Bugoye, Uganda, dated 21/05/2012. As per the email verified by the assessment team, the frequency of calibration defined for both the meters by the meter manufacturers is six years. Thus, the assessment team is of the opinion that even though there is a deviation in the calibration frequency of both the main and check meters as mentioned in the registered PDD[/1/], the readings recorded by the meters are accurate for the current monitoring period as the error observed was less than 0.2% as evident from the calibration certificates dated 26/09//2012[/24//25/] by Norsk Accreditering. Thus, **CAR 03** was closed out satisfactorily.

CAR 05:

- The PP was requested to clarify that the parameters namely $FC_{i,j,y,}$ $NCV_{i,y}$, $EF_{co2,i,y}$ were not reported in Monitoring Report version 1.0 dated 20/06/2012 and the emission reduction excel sheet was not as per the monitoring parameters as mentioned in the registered PDD, section B.6.4 and B.7.1.

- The PP was further requested to provide transparently the detail information on the check meter 1641801 of the project in line with the registered monitoring plan[/1/] under section B.7.2 of the registered PDD. **CAR 05** was raised in this regard.

In response,

The PP revised the monitoring report, version 3.0 dated 10/11/2012 to include all the monitoring parameters and the detail information on the check meter 1641801. The excel sheet was updated as per the registered monitoring plan of the registered PDD[/1/] section B.6.4 and B.7.1. Thus, **CAR 05** was closed out satisfactorily closed out.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The calculation of emission reductions is found to be correct. The details of the reported and the verified values for all parameters are listed in section , 'Calculation of Emission Reductions'. The data adopted primarily from the monthly readings and cross checked against the power invoice raised by TPL and bills issued by UETCL towards units exported by the TPL to the grid considered to arrive at the net units exported to grid for the current monitoring period were cross checked during the on-site verification and found to have been correctly adopted for the emission reduction calculations in the ER calculation excel sheet[/4/].

Further, the *ex-ante* fixed value of grid emission factor adopted from registered PDD[1] for the calculation of emission reductions have been checked and found to be consistent and hence accepted. This is to confirm that appropriate methods and formulae for calculating baseline emissions, project emissions and emission reductions have been followed; and the *ex-ante* fixed baseline emission factor that was applied in the calculations have been found justified.

The monthly meter readings forms the basis of the raising of the power invoices to UETCL and the PP is paid on this basis. The value of net electrical energy exported to grid from the project activity are adopted directly from the monthly readings and cross checked against the units certified in the record of bill payment towards power purchased from the project for the respective periods issued by UETCL for the purpose of the emission reduction calculation. The value in fact is adopted on a conservative mode from this certificate where the units exported to grid is specified and it shows marginal difference from the value as reported in the monthly readings with no impact on the emission reduction figures. The values for the respective periods were cross checked and found consistently adopted from the monthly records of bill payment towards power purchased from TPL issued by UETCL, while calculating the baseline emissions and subsequently emission reductions in the emission reduction excel sheet correctly on a conservative mode.

Details about the calibration of equipments are provided in the section above.

The aforementioned baseline emission parameter was measured in accordance with the registered PDD and the monitoring plan of the applied methodology as *ex-post*. The following parameters were directly taken from the registered PDD to calculate the emission reduction as *ex-ante* fixed:

Parameters as ex-ante fixed	**Applied values**
Emission Factor of the grid (tCO2/MWh)	0.62286

Parameter	**Reported Value (Monitoring Report, version 1 dated 20/06/2012)**		**Verified Value (Monitoring Report, version 4 dated 06/03/2013)**	
EGy : Net electricity supplied by the project to the grid (MWh)	Month	Value	Month	Value
	October 7, 2009 to October 31, 2009	4,073.29	October 7, 2009 to October 31, 2009	4,073.29
	November 2009	5,977.67	November 2009	5,977.67
	December 2009	5,754.42	December 2009	5,754.42
	January 2010	4,671.56	January 2010	4,671.56
	February 2010	1,836.12	February 2010	1,836.12
	March 2010	6,366.81	March 2010	6,366.81
	April 2010	6,479.74	April 2010	6,479.74
	May 2010	3,639.54	May 2010	3,639.54
	June 2010	3,759.50	June 2010	3,759.50
	July 2010	4,501.76	July 2010	4,501.76
	August 2010	5,117.77	August 2010	5,117.77
	September 2010	6,795.41	September 2010	6,795.41
	October 2010	8,206.91	October 2010	8,206.91
	November 2010	8,769.53	November 2010	8,769.53
	December 2010	6,214.57	December 2010	6,214.57
	Total	82,164.60	Total	82,164.60
EFy : CO_2 Emission Factor of the Grid (tCO_2/MWh)	0.62286		0.62286	

The emission reduction calculation is done as per the methodological choice mentioned in the registered PDD.

Net electrical energy exported to grid from the project activity (EG_y) = 82,164 MWh

BEy = EGy x CO_2 emission factor of the grid.

= 82,164 MWh x 0.62286 tCO_2/ MWh

= 51,177 t CO_2e (Rounded Down)

ERy = BEy – PEy- LEy.

As per the registered PDD[1], page 31/62 and Annex 6, that the project emissions will be considered negligible if the project emissions is less than 1.0% of the baseline emissions. For the current monitoring period (07/10/2009 to 31/12/2010), the project emission is 0.061% of the baseline emissions which was also checked and found correct. Hence, the same was not included in the project emissions and hence is accepted.

As PEy and LEy is zero in this case, ERy= BEy

Thus ERy = 51,177 tCO2e.

Discussion of CAR/CL:

CAR 06:

The PP was requested to clarify with regards to the details of data used for calculation of the emission reductions in section 3.2 of the monitoring report. The monitoring report does not include parameters like $FC_{i,j,y,}$ $NCV_{i,y}$, $EF_{co2,i,y}$ used to calculate the emission reductions. Further, the value of the EGy is not consistent with the VER spreadsheet submitted. It is not clear from the MR that how the project emissions from DG sets have been calculated as the same is not included transparently in the spreadsheet. **CAR 06** was raised in this regard.

In response, the section 3.2 of the monitoring report included the data used for calculation of the emission reductions correctly and found consistent. The monitoring section 3.2 now includes parameters as included in the registered CDM-PDD. The value of the EGy is now consistent with the submitted ER spreadsheet, version 2 dated 10/11/2012 and hence accepted. Thus, **CAR 06** was closed out satisfactorily.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

Critical parameters used for the determination of the Emission Reductions are discussed in section 3.2 above. All the data recorded is in compliance with the monitoring report.

4.4 Management and Operational System

In order to verify data quality, the Companies involves in the project works in accordance with a quality assurance procedure (Procedure for Monitoring Plan Implementation), which establishes the operational and management structure implemented.

The management of TPL has deployed qualified and experienced staff for the purpose of running the power plant taking into consideration the maintenance and maintaining the records correctly. Overall performance of the power plant is monitored at regular intervals. The project proponent has developed a 'CDM Team' that is involved in the monitoring, reporting and verification of GHG performance related parameters with specified roles and responsibilities assigned in a satisfactory manner. The CDM coordinator is a primary responsible person for the data measurement, collection and recording. This is being further cross-checked by the CDM Manager of TPL. The overall responsibility of QA/QC for the data collection and archives lies with the CDM Director. The same was also verified during the on-site verification and could be inferred to have the management system proper and the quality assurance is in place.

Discussion of CAR/CL:

CL 02:

The PP was requested to clarify the hierarchy of operation in terms of CDM in section C of the Monitoring Report and also clearly clarify how internal audits were performed. **CL 02** was raised in this regard.

In response, the PP has revised the monitoring report, version 3 dated 10/11/2012. The hierarchy of operation in terms of CDM in section C of the Monitoring Report has been correctly included and found consistent with regard to the interview with the plant personnel during site visit and hence accepted. The detailed procedures of internal audits was included in the monitoring report and have been found consistent with the internal audit reports checked during site visit and hence accepted. Thus, **CL 02** was closed out satisfactorily.

5 VERIFICATION CONCLUSION

The Scope of the Verification

We, SGS have been engaged by Tronder Power Limited to certify that the greenhouse gas (GHG) emission reductions reported for the Bugoye 13.0 MW Run-of-River Hydropower Project for the period from 07/10/2009 to 31/12/2010 (both dates inclusive) in the verification report and the monitoring report version 04 dated 06/03/2013 are eligible for registration as Verified Carbon Units.

This engagement covers the verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the Bugoye 13.0 MW Run-of-River Hydropower Project, as well as an additional confirmation of the compliance of the VCS PD, version 1 dated 06/03/2013 with the requirements of VCS Standard version 3.3.

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. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Conclusions of the Verification

(a) SGS is an entity accredited by the United Nations Framework Convention for Climate Change (UNFCCC) to undertake certification and verification services in the sector in which the Project is undertaken. The accreditation is accepted by VCSA as indicated in Clause 5 of VCS Program Guide Version 3.3.

(b) The monitoring report, together with other information examined, was prepared as per the VCS Monitoring Report Template, Version 3.2.

(C)The information in the monitoring report together with other information examined by the assessment team, including all the information necessary to determine that the emission reductions achieved have been determined correctly.

(d) Based on the examination of the monitoring report and other relevant information, the project meets all the requirements of the VCS Standard Version 3.3.

(e) Based on our examination of the monitoring report and other relevant information, the claiming emission reductions during the monitoring period from **07/10/2009 to 31/12/2010** (both dates inclusive) are verified as **51,177** tonnes CO_2 equivalent.

Liability statement with regards to the accuracy of the verification statement

The management of Tronder Power Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions. SGS is responsible for verification and confirming emission estimates for the project, as described in the monitoring report.

Our certification approach draws on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes an assessment of evidence, through desk review, and where necessary, interviews, stakeholder discussions and site visits, relevant to certifying the rightfulness of the amounts and disclosures in relation to the Project's GHG emission reductions.

We planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that the amount of GHG emission reductions for the given period, prepared on the basis of the monitoring report, are fairly stated.

This assessment included:

Collection of evidence supporting the reported data;

Checking whether the provisions of the Monitoring Plan in the registered PDD, were consistently and appropriately applied;

Site visit and interview of relevant staff.

We have verified whether the information included in the monitoring report representing the emission reductions achieved has been determined correctly for the given period from the baseline figure.

Certification Statements

Based on process and procedures conducted, in our opinion, the monitoring report version 04 dated 06/03/2013 on emission reductions for Bugoye 13.0 MW Run-of-River Hydropower Project during the reporting period from 07/10/2009 to 31/12/2010 (both dates inclusive) is materially correct and is a fair representation of the GHG data and information and the emission reductions are fairly stated. All relevant facts have been found correct by our examination. The GHG emission reductions calculation is correct.

Therefore, SGS is able to certify that the project is in full compliance with the VCS Standard Version 3.3 and the quantity of the reported emission reductions during below reporting period are completely, comparably, accurately and correctly reported.

Reporting period from: 07/10/2009 to 31/12/2010 (Both days inclusive)

Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO2e
Baseline Emissions	51,177
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	51,177

Statement of Confidentiality

SGS will hold all information confidential until the client instructs otherwise or until it has been released in accordance with the VCS Standard Version 3.3 requirements.

Signed on behalf of the Verification Body by Authorized Signatory

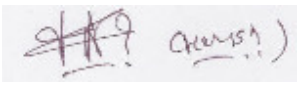
SGS United Kingdom Limited

Date: 28/03/2013

Signature:

Date: 28/03/2013

Signature:



Lead Assessor

Shivaji Chakraborty

Technical Reviewer

Harsh Raval

6 REFERENCE

/1/	Registered PDD version 04 dated 06th May 2006. Validation report prepared by Bureau Veritas Certification Holding SAS. The project got registered under CDM on 01/01/2011 Weblink: http://cdm.unfccc.int/Projects/DB/BVQI1254738519.15/view
/2/	Monitoring Report /Version 01, dated 20/06/2012 (Initial)
/3/	Monitoring Report /Version 01, dated 24/07/2012(Intermediate) Monitoring Report /Version 02, dated 10/09/2012 Monitoring Report /Version 03, dated 10/11/2012 Monitoring Report/ Version 04, dated 06/03/2013 Monitoring Report/ Version 05, dated 26/03/2013 (Final)
/4/	Emission Reduction computation sheer version 01 dated 20/06/2012 (Initial) Emission Reduction computation sheet, version 02 dated 10/11/2012 Emission Reduction computation sheet, version 03 dated 06/03/2013 Emission Reduction computation sheet, version 04 dated 26/03/2013 (Final)
/5/	Registered Applied Methodology: AMS- I.D, version 15 (valid from 30/10/2009 till 10/06/2010) Weblink: http://cdm.unfccc.int/filestorage/7/Q/X/7QXAZ5036WN8BEYKUDFRPJGL21V4I9/EB50_repan29_AMS-I.D_ver15.pdf?t=SkJ8bWUzajMxfDAwqT72Kmv_ZRoCHfuY_CZx
/6/	Technical specifications of the Turbine-Generator set.
/7/	Power Purchase Agreement signed between Tronder Power Ltd and Uganda Electricity Transmission Company Limited dated 28/02/2008
/8/	Voluntary Carbon Standard 3.3 http://v-c-s.org/program-documents/find-program-document
/9/	2006 IPCC Guidelines for National Greenhouse Gas Inventories. Weblink: http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
/10/	Monthly Generation data for the monitoring period: 07/10/2009 to 31/12/2010 (both dates inclusive)
/11/	Minutes of Meeting of Site visit planning and on site interviews dated 28/06/2012
/12/	Certificate of Commissioning issued by UETCL to PP vide ref no: UETCL/MCS/IPP-11 dated 02/02/2011 (Start date of the Project Activity).
/13/	Initial Test certificate issued by CEWE Instruments for the main meter bearing serial no: 164802 dated 10/07/2008
/14/	Initial Test certificate issued by CEWE Instruments for the check meter bearing serial no: 164801 dated 10/07/2008
/15/	Log book/ generation data for the monitoring period: 07/10/2009 to 31/12/2010 (both dates inclusive)-Hard Copy
/16/	Purchase orders issued for the (2 x 7.140 MW) from TPL to Mavel
/17/	Email evidence dated 21/05/2012 received from the OEM confirming that the frequency of calibration for the energy meters (Main and Check) will be six years.
/18/	Shutdown details of the generation data for the current monitoring period, 07/10/2009 to 31/12/2010 (both dates inclusive)
/19/	Monthly generation data for the period: 07/10/2009 to 31/12/2010 (both dates inclusive)-Soft

	Copy
/20/	The run hours log book of Diesel Generator set.
/21/	Monthly bills issued by UETCL to TPL for the period: 07/10/2009 to 31/12/2010 (both dates inclusive)
/22/	Purchase receipts of the Diesel purchase by TPL for the period: 07/10/2009 to 31/12/2010 (both dates inclusive)
/23/	VCS PD version 1 dated 06/03/2013
/24/	Calibration certificate issued by Norsk Accreditering for the main meter bearing serial no: 164802 dated 26/09/2012.
/25/	Calibration certificate issued by Norsk Accreditering for the check meter bearing serial no: 164801 dated 26/09/2012.
/26/	Undertaking from the Tronder Power Ltd dated 21/03/2013 for the declaration of following - The project is not grouped project - Tronder Power Limited is an owner of the project & VCUs - Tronder Power is not claiming emissions reductions under any other emissions trading mechanism for the applied VDS monitoring period - The VCS PD has no commercially sensitive information - The project activity has not been rejected by any other GHG program - There is no double counting envisaged for the mentioned VCS period

7 FINDINGS OVERVIEW

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	05	01	00

Date:	29/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	01	Reference:	Section 3.1.1 of AU4

Lead Assessor Comment: **Date:** 29/06/2012

The PP is requested to clarify the name of the project as per the UNFCCC page of project UN PA 3017.

The PP is requested to clarify relevant dates of the project as mentioned in section 1.1 of the Monitoring Report and clarify the relevance of September 2009 when the Commissioning of the project has been done on 07/10/2009 as per the Confirmation of Commercial Operations date (vide letter from UETCL dated 02/02/2011 Ref no. UETCL/MCS/IPP-11). Also PP has to clarify the basis of calculation of 6308 annual operating hours, and also the estimation of 82,000MWh.PP is requested clarify the make and supplier of Turbine and Generator in section A.4 of the Monitoring Report.

Project Participant Response: **Date:** 24/07/2012

The project title was updated using capital letters for initial as per the PDD.

The project, as confirmed by the Ugandan Electricity Transmission Company Limited, started commercial operation from 07/10/2009. However, since September 2009 there were a number of test runs and electricity generation prior to official commissioning. Nevertheless, in the Monitoring Report, the part mentioning September 2009 was removed to keep consistency with official commercial start date of the project. The emission reduction calculations count from the official commissioning of the project, i.e. 07 October 2009.The way to calculate the number of operating hours was clarified in the PDD. The number of operating hours for year 2009 is calculated by subtracting the number of down-time hours from 2064 (i.e. total number of hours from the commissioning till end of the year) for each unit. The total annual generation is calculated by summing up the monthly generation reports which are confirmed by UETCL and serve as reference to the invoices sent to the purchaser. The number of operating hours for year 2010 is calculated by subtracting the number of down-time hours from 8760 (i.e. total number of hours from of the year) for each unit.

The MR was updated to incorporate the name of manufacturer and supplier of the turbine and the generator.

Documentation Provided as Evidence by Project Participant:

The confirmation certificate from Ugandan Electricity Transmission Company Limited, the purchaser of electricity, confirming the official start date of the project: File name: 2011-02-02 UETCL confirmation COD, dated 02 February 2011. *Updated monitoring report: File name: Bugoye VCS MR, pages 1 & 3; dated 24/07/2012.*
Information Verified by Lead Assessor:
The confirmation certificate from Ugandan Electricity Transmission Company Limited, the purchaser of electricity, confirming the official start date of the project: File name: 2011-02-02 UETCL confirmation COD, dated 02 February 2011. *Updated monitoring report: File name: Bugoye VCS MR, pages 1 & 3; dated 24/07/2012.*
Reasoning for not Acceptance or Acceptance and Close Out:
The project title mentioned in the revised VCS MR 01 is still inconsistent with the project title mentioned in the registered PDD and UNFCCC web-page. Please clarify the same.The date of commissioning is found to be correctly included in the revised VCS MR, page 4 which is now consistent with the commissioning certificate issued by Uganda Electricity Transmission Company Ltd, reference: UETCL/MCS/IPP-11 dated 02/02/2011 and hence accepted. The operating hours mentioned and explained in the revised VCS MR, page 6 is found justified and found consistent with the plant log sheets checked during on-site verification site visit by the assessment team hence accepted. The revised VCS MR, page 3 was checked and found to have included the name of the manufacturer and supplier for the turbine and the generator and hence accepted.

Acceptance and Close out by Lead Assessor: Open	**Date:** 04/08/2012
Project Participant Response:	**Date:** 10/09/2012
The project title was corrected with capital initials to be consistent with the PDD.	
Documentation Provided as Evidence by Project Participant:	
Updated monitoring report: File name: Bugoye VCS MR, pages 1 & 3; dated 10/09/2012.	
Information Verified by Lead Assessor:	
Revised Monitoring report, version 02 dated 10/09/2012was checked for the consistency of the project title	
Reasoning for not Acceptance or Acceptance and Close Out:	
The project title was checked and now found to be consistent with the registered title in the UN webpage and hence is accepted. However, please clarify the following:	

The date of the MR is not correct. Section 1.4 is not as per the VCS MR guidance. The MR template and formatting is not followed consistently. Please clarify the duration of the import reading taken at the shoulder period in the ER calculation sheet.
Acceptance and Close out by Lead Assessor: Open — **Date: 11/02/2013**
Project Participant Response: — **Date: 06/03/2013**
Date of the MR has been corrected accordingly *Section 1.4 amended accordingly* *MR template and formatting reviewed and corrected* *Duration of import reading at shoulder period corrected (change from 06:00 to 08:00 to 06:00 to 18:00)*
Documentation Provided as Evidence by Project Participant:
Corrections for points 1, 2 and 3 made in MR version 4 (file name: Bugoye VCS MR 04_PP reply130213). Corrections for point 4 made in VER calculation sheet (file name: VER Emission Reduction Calculations for Bugoye Hydro 130211)
Information Verified by Lead Assessor:
1. Revised MR, version 4 dated 06/03/2013 2. Revised VER spreadsheet dated 06/03/2013
Reasoning for not Acceptance or Acceptance and Close Out:
The MR is not using the latest template as per the VCS website.
Project Participant Response: — **Date: 27/03/2013**
MR template has now been updated to latest template as per the VCS website version 3.2. Changes made to dates in MR and spreadsheet as required.
Documentation Provided as Evidence by Project Participant:
Bugoye VCS MR 05_PP reply130326 *VCS PD_130326*
Information Verified by Lead Assessor:
Bugoye VCS MR 05_PP reply130326 *VCS PD_130326*
Reasoning for not Acceptance or Acceptance and Close Out:

The MR template was checked and it was found to be updated to version 3.2 and thus accepted. Sections on page 19 and 22 were checked and links were found to be working. Dates on MR and excel sheet were found to be covering the date from 07/10/2009 correctly and thus accepted.
Acceptance and Close out by Lead Assessor: Closed **Date:** 28/03/2013

Date:	29/06/2012		Raised by:	Assessment Team	
Type:	CL	Number:	02	Reference:	Section 3.1.2 of AU4
Lead Assessor Comment:				**Date:** 29/06/2012	
PP has to clarify with regard to the hierarchy of operation in terms of CDM in section C of the Monitoring Report and also clearly clarify how internal audits were performed.					
Project Participant Response:				**Date:** 24/07/2012	
The monitoring report was updated by more in-depth explanation of the Monitoring System, distribution of responsibilities and responsibility/hierarchy chart. As part of responsibilities, it was explained how the CDM Director in TronderPower Kampala is responsible for organizing quarterly internal audits with a pre-notification of the CDM Coordinator. The internal audits include overall quality control of the Monitoring System and ensuring that all the internal specific CDM procedures are followed closely. On annual bases, the CDM Manager in TrønderEnergi Norway shall be involved in the internal audits as well.					
Documentation Provided as Evidence by Project Participant:					
Updated monitoring report: File name: Bugoye VCS MR 01, pages 9 to 12; dated 24/07/2012.					
Information Verified by Lead Assessor:					
Updated monitoring report: File name: Bugoye VCS MR 01, pages 9 to 12; dated 24/07/2012.					
Reasoning for not Acceptance or Acceptance and Close Out:					
The revised *VCS MR 01, page13 have been found to include the details of the* hierarchy of operation in terms of CDM in section C of the Monitoring Report. It includes the details of how an internal audit is being carried out. The same is found consistent and hence accepted.					
Acceptance and Close out by Lead Assessor: Closed				**Date:** 04/08/2012	

Date:	29/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	03	Reference:	Section 3.5.5
Lead Assessor Comment:				**Date:** 29/06/2012	
PP is requested to clarify, why calibration has not been conducted for the meters (Serial numbers: 1641802 (main meter) and 1641801(check meter) as per the frequency specified in the registered PDD after it was installed in 2009 (initial calibration was done on 10/07/2008).					

Project Participant Response:	**Date:** 24/07/2012
According to the manufacturer's communication with the project proponents, the CEWE PrometerR meters do not require calibration until 6 years after they are tested and installed. The purchaser of the electricity (UETCL) has been present in all the monthly commercial meter readings and has confirmed all the invoices sent by TronderPower. In addition, readings of the check meter which acts as a second check point to ensure the accuracy of the Main Meter readings, confirms the consistency. All the above-mentioned points were inspected by the verifier during the site visit.	
Documentation Provided as Evidence by Project Participant:	
Email from the manufacturer expert: File: Meters at Bugoye Uganda.msg, dated 21/06/2012. The test certificates of the meters: File: Cewe meters 1 / Cewe meters 2, dated 10/07/2008 Monthly electricity generation reports, signed by UETCL (the purchaser): 15 files: Scanned images of the signed forms from October 2009 till December 2010.	
Information Verified by Lead Assessor:	
Email from the manufacturer expert: File: Meters at Bugoye Uganda.msg, dated 21/06/2012. The test certificates of the meters: File: Cewe meters 1 / Cewe meters 2, dated 10/07/2008 Monthly electricity generation reports, signed by UETCL (the purchaser): 15 files: Scanned images of the signed forms from October 2009 till December 2010.	
Reasoning for not Acceptance or Acceptance and Close Out:	
As per the registered CDM-PDD, the main and check meter will be calibrated annually. But as per the revised VCS MR 01, due to the non-availability of the relevant expertise in Uganda to undertake the calibration of the said meters, PP was unable to conduct the calibration as per the frequency mentioned in the registered CDM-PDD. The PP further carried out the calibration of both main and check meters on 26/09//2012[/24//25/] by Norsk Accreditering which is a accredited calibrated agency of Norway and thus was accepted to be in compliance with the registered monitoring plan. The error as specified in the calibration certificates is less than the 0.2% for both main and check meters conforming their proper and accurate functioning and data recording for the current monitoring period. Further, the calibration frequencies have been considered as six years as specified by the meter manufacturers (Mr. Lars Hansson, Senior Application Engineer & Sales Manager, CEWE instruments AB)via email *SV: Meters at Bugoye, Uganda, dated 21/05.2012*.. Thus, the assessment team is of the opinion that even though there is a deviation in the calibration frequency of both the main and check meters as mentioned in the registered PDD, the readings recorded by the meters are accurate for the current monitoring period as the error observed was less than 0.2% as evident from the calibration certificates dated 26/09//2012 by Norsk Accreditering. Thus, **CAR 03** is closed out satisfactorily.	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 04/08/2012

Date:	29/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	04	Reference:	Section 3.1.3

Lead Assessor Comment:	**Date:** 29/06/2012

PP is requested to clarify, the hourly details of shutdown of the power plant, single line diagram of the project with locations of the meter in section B.1 of the monitoring report are not provided.

PP is requested to clarify the date of September 2009 mentioned in section B.1 of the MR, when the project was commissioned on 07/10/2009 as per the Confirmation of Commercial Operations date (vide letter from UETCL dated 02/02/2011 Ref no. UETCL/MCS/IPP-11).

Project Participant Response:	**Date:** 24/07/2012

The hourly details of the power plant were added to the Monitoring Report in section 5 (Additional Information). The downtime tables include times when any outage happened during the monitoring period under consideration, the duration of every outage, the type of outage and the problem description.

A single-line diagram was added to indicate the monitoring points and the project boundary in a simple way.

The dates before 07/10/2009 were removed from the MR as well as the Emission Reduction calculations spread sheet. Although the power plant supplied electricity to the grid from September 2009, the MR was corrected to consider only the dates after the official commissioning of the project (i.e. 07/10/2012)

Documentation Provided as Evidence by Project Participant:

The hourly details of the shutdowns of the power plant were added to the Monitoring Report in section 5 (Additional Information). The downtime tables include times when any outage happened during the monitoring period under consideration, the duration of every outage, the type of outage and the problem description.

A single-line diagram was added to indicate the monitoring points and the project boundary in a simple way.

The MR updated, in order to consider dates only after 07/10/2012.

Updated monitoring report: File name: Bugoye VCS MR 01, pages 6 & 18 to 67; dated 24/07/2012.

Information Verified by Lead Assessor:

Monitoring Report, version 01, dated 20/06/2012

Reasoning for not Acceptance or Acceptance and Close Out:

The revised VCS MR 01 has been correctly updated with the hourly details of shutdown of the power plant in page 19 and hence accepted.The single line diagram of the project with locations of the meter in section 2.1 of the monitoring report, page 6 and was found to be consistent with the actual project checked on site and hence accepted. The revised VCS MR 01 has been correctly updated with the date of commissioning as 07/10/2009 in page 4 and found consistent with the commissioning report issued by UETCL (vide letter from UETCL dated 02/02/2011 Ref no. UETCL/MCS/IPP-11) hence accepted.
Acceptance and Close out by Lead Assessor: Closed **Date:** 04/08/2012

Date:	29/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	05	Reference:	3.5.3 of AU4.
Lead Assessor Comment:			**Date:** 29/06/2012		
PP is requested to clarify why all parameters are not reported in Monitoring Report version 1.0 dated 09/02/2012 as per the requirement of registered PDD section B.6.4 and B.7.1. PP is requested to provide transparently information on the check meter 1641801 of the project in line with the requirements mentioned in the monitoring plan of the registered PDD.					
Project Participant Response:			**Date:** 24/07/2012		
The parameters that were used to calculate the Emission Factor in the PDD were not reported in the MR version one since the same Emission Factor shall be used for the entire crediting period. Nevertheless, the Monitoring Report was updated to incorporate all of the PDD parameters. All of the check meter data 1641801 were inspected by the verifier and were submitted to the verifier during the site visit.					
Documentation Provided as Evidence by Project Participant:					
Updated monitoring report: File name: Bugoye VCS MR 01, pages 7 & 15 till 18; dated 24/07/2012.					
Information Verified by Lead Assessor:					
Monitoring Report, version 01, dated 20/06/2012					
Reasoning for not Acceptance or Acceptance and Close Out:					
The parameters mentioned in the revised VCS MR01 are not consistent with the monitoring parameters mentioned in the registered CDM-PDD under section B.7.1. PP is requested to clarify that why the parameters like $FC_{i,j,y,}$ $NCV_{i,y}$, $EF_{co2,i,y}$ is not being presented transparently in section 3.3 of the VCS MR. Also, the value for net electricity supplied to the grid (EGy) is not consistent with the VER spreadsheet submitted to the DOE. Please clarify. It is not clear from the submitted VER spreadsheet that what is the total VER and net electricity generation during the current monitoring period (07/10/2009 to 31/12/2010). Please clarify. It is still not clear from the VCS MR on the information on the check meter 1641801 of the project in					

line with the requirements mentioned in the monitoring plan of the registered PDD. Please clarify.
Acceptance and Close out by Lead Assessor: Open **Date:** 04/08/2012
Project Participant Response: **Date:** 10/09/2012
The parameters reported in the MR were modified to reflect the correct value and also to keep consistency with the PDD. Parameters $FC_{i,j,y,}$ $NCV_{i,y}$, $EF_{co2,i,y}$ were presented in sections 3.3 of the VCS MR. The error in reporting the value of EGy was corrected. The VER spread-sheet updated to more clearly reflect the net electricity generation during the monitoring period. The requirements for the check meter (Serial Number: 1641801) are similar to that of the main meter (Serial Number: 1641802). It is indicated in sections 2.2 and 3.3 of the VCS MR.
Documentation Provided as Evidence by Project Participant:
Updated VER spread-sheet, Filename: VER Emission Reduction Calculations for Bugoye Hydro; dated 10/09/2012. Updated monitoring report: File name: Bugoye VCS MR 03, dated 10/09/2012.
Information Verified by Lead Assessor:
Revised VER sheet and monitoring report, version03 dated 10/11/2012 (PP had incorrectly provided the date as 10/09/2012 in the response above for version 03 of the MR)
Reasoning for not Acceptance or Acceptance and Close Out:
The parameters mentioned in the revised VCS MR, version 03 dated 10/11/2012 are now found to be consistent with the monitoring parameters mentioned in the registered CDM-PDD under section B.7.1 and hence accepted. The value for net electricity supplied to the grid (EGy) is now made consistent with the VER spreadsheet and hence accepted. The revised VER spreadsheet now includes the the total VER and net electricity generation during the current monitoring period (07/10/2009 to 31/12/2010) and hence is accepted. The sections under 2.2 and 3.3 of the VCS MR, version 03 dated 10/09/2012 includes the requirements of the main and check meter which is now found consistent with the registered PDD and hence is accepted. Thus, CAR05 was closed out satisfactorily.
Acceptance and Close out by Lead Assessor: Closed **Date:** 24/11/2012

Date:	29/06/2012		Raised by:	Assessment Team	
Type:	CAR	Number:	06	Reference:	Section 05 of AU4

Lead Assessor Comment:	**Date:** 29/06/2012
PP is requested to clarify in line with requirement of, with regard to the details of method used for calculation of the emission reductions and project emissions in section E.4 of the monitoring report.	
Project Participant Response:	**Date:** 24/07/2012
The Monitoring Report was updated with necessary footnotes explaining the process of calculation of the Emission Reductions. The spread-sheet used for calculating the Emission Reductions was also inspected by the verifier on site, updated to reflect comprehensively how the ERs are calculated and attached to this Response	
Documentation Provided as Evidence by Project Participant:	
Updated monitoring report: File name: Bugoye VCS MR 01, pages 15 to 18; dated 24/07/201 Updated ER spread-sheet: File name: 120720 - VER Emission Reduction Calculations - Bugoye Hydro, dated 20/07/2012, including 15 sheets corresponding to each month from October 2009 until December 2010 and1 summary of ER calculations spread-sheet.	
Information Verified by Lead Assessor:	
Monitoring Report, version 01 dated 20/06/2012 Revised Emission Reduction Spreadsheet dated 20/06/2012	
Reasoning for not Acceptance or Acceptance and Close Out:	
The monitoring section 3.2 do not includes parameters as included in the registered CDM-PDD. Further, the value of the EGy is not consistent with the VER spreadsheet submitted. It is not clear from the MR that how the project emissions from DG sets have been calculated as the same is not included transparently in the spreadsheet. Please clarify.	
Acceptance and Close out by Lead Assessor: Open	**Date:** 04/08/2012
Project Participant Response:	**Date:** 10/09/2012
The section 3.2 of the MR was modified to reflect all the parameters. The error in reporting the value of EGy was corrected. Calculation of the project emissions from the diesel generator sets has been presented in detail in the MR section 4.2, based on the PDD assumptions as well as two other methods to verify the Project Emission calculations. The Project Emission calculations are presented in the VER spread-sheet as well.	
Documentation Provided as Evidence by Project Participant:	

Updated VER spread-sheet, Filename: VER Emission Reduction Calculations for Bugoye Hydro; dated 10/09/2012. Updated monitoring report: File name: Bugoye VCS MR 03, dated 10/09/2012
Information Verified by Lead Assessor:
The revised MR, version 03 dated 10/11/2012 and revised VER spreadsheet was checked . (PP had incorrectly provided the date as 10/09/2012 in the response above for version 03 of the MR)
Reasoning for not Acceptance or Acceptance and Close Out:
The monitoring section 3.2 now includes parameters as included in the registered CDM-PDD. The value of the EGy is now consistent with the VER spreadsheet submitted and hence is accepted. The details of the project emissions are now included transparently in the revised MR, version 03 dated 10/09/2012 and revised VER excel sheet are found to be consistent with the registered monitoring plan and hence is accepted.

Acceptance and Close out by Lead Assessor: Closed	**Date:** 24/11/2012

8 TEAM MEMBERS STATEMENT OF COMPETENCY

Name: Shivaji Chakraborty

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) **x**

Technical Area(s*):*
TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar
TA 1.2 Energy generation from renewable energy sources

2. Energy Distribution x

Technical Area(s*): TA 2.1 Electricity distribution*
TA 2.2 Heat distribution

3. Energy Demand **x**

Technical Area(s*): TA 3.1 Energy Demand*

4. Manufacturing

Technical Area(s*):*

5. Chemical Industry

Technical Area(s*):*

6. Construction

Technical Area(s*):*

7. Transport

Technical Area(s*):*

8. Mining/Mineral Production

Technical Area(s*):*

9. Metal Production

Technical Area(s*):*

10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s*):*

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s*):*

12. Solvent Use

Technical Area(s*):*

13. Waste Handling and Disposal

Technical Area(s*):*

14. Afforestation and Reforestation

Technical Area(s*):*

15. Agriculture

Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 19/09/2012

Name: Philip Otieno Abuor

Status

-	Lead Assessor		-	Expert	
-	Assessor		-	Financial Expert	
-	Local Assessor	Uganda	-	Technical Reviewer	

Scopes of Expertise

1. **Energy Industries (renewable / non-renewable)**
Technical Area(s*):*
2. **Energy Distribution**
Technical Area(s*):*
3. **Energy Demand**
Technical Area(s*):*
4. **Manufacturing**
Technical Area(s*):*
5. **Chemical Industry**
Technical Area(s*):*
6. **Construction**
Technical Area(s*):*
7. **Transport**
Technical Area(s*):*
8. **Mining/Mineral Production**
Technical Area(s*):*
9. **Metal Production**
Technical Area(s*):*
10. **Fugitive Emissions from Fuels (solid, oil and gas)**
Technical Area(s*):*
11. **Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride**
Technical Area(s*):*
12. **Solvent Use**
Technical Area(s*):*
13. **Waste Handling and Disposal**
Technical Area(s*):*
14. **Afforestation and Reforestation**
Technical Area(s*):*
15. **Agriculture**
Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 09/08/2012

Name: Sauvik Banerjee

Status

-	Lead Assessor		-	Expert	
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s): TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 08/11/2012

Name: Harsh Raval

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s): *TA 1.2 Energy generation from renewable energy sources*	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 17/07/2012

Name: Vishnu Patidar

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	India	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Technical Area(s): *TA 1.2 Energy generation from renewable energy sources*	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	
Technical Area(s):	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 15/02/2012

- o0o -