

VERIFICATION REPORT OF 51 MW WIND POWER PROJECT AT CHITRADURGA



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Summary:

Bureau Veritas Certification has performed 3rd periodic verification of the “51 MW Wind Power Project at Chitradurga” project of NSL Renewable Power Private Limited located at Bhimasamudra site in Chitradurga district in Indian State of Karnataka on the basis of Verified Carbon Standard Version 3, 8 October 2013, v3.4 as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification scope is defined as a periodic independent review and ex-post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases:

- i) desk review of the project design and the baseline and monitoring plan;
- ii) follow-up interviews with project stakeholders;
- iii) Resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The project activity is to generate power (electrical energy) from renewable energy (wind energy), which displaces power generation from fossil fuel that would have been the scenario in absence of the project activity, thus achieve GHG emission reduction due to utilization of renewable energy.

The verification is based on the documents like Monitoring Report, Project description (PD), Emission Reduction calculations and other supporting documents provided to the verification team. This verification is carried out in accordance with VCS Standard Version 3 dated 8 October 2013 v3.4 and VCS Program Guide Version3, dated 8 October 2013 v3.5.

During the current verification, the verification team raised findings in the form of corrective action requests (CARs) and Clarification requests (CLs).

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated VCS-Project and earlier verification documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project contributes towards GHG emission reductions. The GHG emission reduction is calculated without material misstatements.

Our opinion relates to the Project's GHG emissions and the resulting GHG emission reductions viz. Verified Carbon Units (VCUs) reported are based on the valid project baseline, monitoring plan and associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms following statement:

Reporting period	Baseline Emissions (BE _y) tCO ₂ e	Project Emissions (PE _y) (tCO ₂ e)	Leakage Emissions (LE _y) (tCO ₂ e)	Emission Reductions (ER _y) (tCO ₂ e)
01/10/2012- 31/12/2012	24745	0	0	24745
01/01/2013 - 31/12/2013	105434	0	0	105434
Total	130179	0	0	130179

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Abbreviations:

VER	Verified Emission Reduction
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
BMS	Bureau Veritas Certification's Management System
CAR	Corrective Action Request
CL	Clarification Request
FAR	Forward Action Request
CO ₂	Carbon Dioxide
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gases
I	Interview
IETA	International Emissions Trading Association
MV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non Governmental Organization
PD	Project Description
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
CDM	Clean Development Mechanism
MU	Million Units
KW	Kilowatt
KWh	Kilowatt-hour
MW	Megawatt
MWh	Megawatt-hour
EF	Emission factor
KPTCL	Karnataka Power Transmission Corporation Limited
BESCOM	Bangalore Electricity Supply Company Limited
PPA	Power Purchase agreement
JMR	Joint Meter Reading
CEA	Central Electricity Authority
PP	Project Participant
WTG	Wind Turbine Generator

1 INTRODUCTION

1.1 Objective

Verification is the periodic independent review and ex-post determination by the verifier of the monitored reductions in GHG emissions during defined verification period. The objective of the verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project has generated verifiable emission reductions. This is 3rd verification of the project activity under VCS for the vintage for the period starting from 01/10/2012 to 31/12/2013. These emission reductions are verified as per the guidance provided by VCS standards version 3 dated 8 October 2012 v3.4.

The verification shall consider both qualitative and quantitative information on emission reductions. Quantitative data comprises the monitoring report and emission reduction calculations submitted to the verifier by the project participant and qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emission reduction reports, review and internal audit of calculations/data transfers.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of monitoring report, validated VCS PD, the project's baseline study including the monitored data and other relevant documents made available to the verifier and information collected through performing interviews with Project participant during on-site assessment of the project activity. The verification follows VCS Standard version 3 dated 8 October 2012 v3.4.

The verification is not meant to provide any consultation towards the client. However, stated request for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Level of assurance

The verification team was provided with a monitoring report, covering the period 01/10/2012 to 31/12/2013 (inclusive of both the days). Based on this documentation, a document review, on-site assessment of implementation of the project activity and interview with the project participant was conducted. The Monitoring Report, version 01.3, dated 23/05/2014 covering the period from 01/10/2012 to 31/12/2013 (inclusive of both the days) serves as the basis for the assessment presented herewith.

The verification report is based on the documents made available to verification team and information provided during interviews. Based on the process and procedures conducted, it can be concluded that the GHG assertion.

1. Is materially correct and is a fair representation of GHG data and information, and
2. Has been prepared in accordance with VCS Standard Version 3 dated 8 October 2013 v3.4.

The data used for the calculation of emission reductions were taken from CEA (Central Electricity Authority), Form B issued by BESCOM and Invoice raised by the Project participant for the net electricity exported to the grid by project activity. As per the VCS PD, revised VCS MR the calibration for the meters will be done once in a year by BESCOM/KPTCL.

During the current monitoring period, the calibration frequency was followed and the details of the same are discussed in the following sections of the report. There was one instance when meter was changed during the current verification period. During site visit and subsequent review of meter change document it was confirmed that there was meter change in the project activity. Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions.

Based on the process and procedure conducted, it can be concluded that the GHG assertion is materially correct and is a fair representation of GHG data and information which has been prepared in accordance with the VCS Standard 3 v3.4 for the current verification period.

The verification team considers the assurance level as 'reasonable'. In accordance with the VCS Standard 3 Version 3.4, the materiality threshold applied was one percent. The accrued emission reductions for the current monitoring period from the project activity are 130179 tCO₂e.

1.4 Summary Description of the Project

The project activity is owned by M/s NSL Renewable Power Private Limited (hereafter referred to as "the Project Participant"). It involves the installation of Suzlon make 04 numbers Wind Turbine Generator's (WTG) of capacity 2.1 MW each and 28 numbers of ReGen Powertech make 1.5MW WTGs located in Bhimasamudra site in Chikkandavadi and Kallavangathihalli village of Chitradurga district in the state of Karnataka, India. The total capacity of the project activity is 50.4 MW and the entire power generated by the project activity is exported to the Southern region grid with a firm power purchase agreement with BESCOM/KPTCL.

The Project has been registered under VCS standard 2007.1 with project ID 706 under approved CDM methodology ACM 0002, Version 11 "Consolidated methodology for grid-connected electricity generation from renewable sources". The Project Start Date is 06/06/2008, when the first WTG No HK 3 of the Project activity was commissioned and started electricity generation. The 3rd monitoring period for the Project under the VCS is from 01/10/2012 to 31/12/2013.

Project Title	51 MW Wind Power Project at Chitradurga
VCS Project ID	706
Monitoring period	01/10/2012 – 31/12/2013
Project participant	NSL Renewable Power Private Limited
Methodology used	ACM 0002 version 11
Location of the project	Chitradurga District in Karnataka State
Geo Coordinates	As provided in Section 1.5 of VCS PD and section 1.7 of the monitoring report
VCS Link	https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=706&lat=14%2E233333&lon=76%2E433333&bp=1

The project activity generates electricity using wind energy, which does not result in any greenhouse gas (GHG) emissions. Thus, this project activity leads to a reduction in GHG emissions that would otherwise have occurred when using electricity generated from conventional fossil fuel based sources in the Southern region grid.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The overall verification, beginning from the Contract Review to Verification report & opinion, was conducted using Bureau Veritas Certification internal procedures.

The project is already registered with the VCSA on 15/11/2011 (VCS ref no 706) and can be viewed from the web link in the VCSA website (<https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=706&lat=14%2E233333&lon=76%2E433333&bp=1>). The verification criteria followed by the project participant is based on the VCS standards Version 3. This is the third verification of the project activity under VCS for the vintage from 01/10/2012 till 31/12/2013 (both the days included). The verification process consists of following activities:

- i) Desk review of the registered project document including the baseline and the monitoring plan: This process consists of the review of the current and previously approved documents related to the project activity including validation report, approved VCS PD and previous 2 verification reports. The current documents include the Monitoring report for the current verification period, emission reduction spreadsheet and other supporting documents (Form B issued by BESCOM, invoices raised by the Project participant, etc.) pertaining to the current verification period. Refer to Annexure II for the list of documents.
- ii) Interviews with project stakeholders and Document Review: The second step involves the Interviews and discussion with the Project Participants and as well as review of documents provided under Annexure II to ensure the implementation and operation of the project activity in line with the registered VCS-PD;
- iii) Resolution of outstanding issues and the issuance of the final verification report including verification opinion: The third step involves the resolution of the CAR/CL raised. Verification process also includes raising the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification before conclusion on the GHG emission reduction calculation.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Annexure I. The supplementary validation and verification of the Project resulted in 03 Corrective Action Requests (CARs) and 01 Clarification Requests (CL).

All the CARs and CLs were closed based on adequate responses from the Project Participant(s) which meets the applicable requirements. They have been reassessed before their formal acceptance and closure. The closure of all the CARs and CLs are discussed under Annexure I of the verification report.

The project activity involves 100% monitoring of data related to emission reduction calculation. No sampling plan has been envisaged.

2.2 Document Review

The verification team has assessed the accuracy of the project description including monitoring plan through a combination of steps consisting of site visit inspection, review of contract related to the project activity, Scrutiny of technical specification and interview of the project participant and their representatives. Following supporting documents were reviewed for the current verification period:

- VCS-PD, VCS-Validation Report, Emission reduction of the project activity;
- Monitoring report and emission reduction spreadsheet for the current verification period,
- Form B issued by BESCOM for each metering location, monthly Invoices raised by the Project participant for the current verification period.

Based on this documentation, a document review and an on-site assessment of implementation and emission reduction was conducted. The Monitoring Report, version 1.3, dated 23/05/2014 covering the period 01/10/2012-31/12/2013 (inclusive of both the days), serves as the basis for the assessment presented herewith.

2.3 Interviews

On 13/03/2014, during site visit, Bureau Veritas Certification performed interviews with the representative of the project participant and O & M Service provider to confirm selected information and to resolve issues identified in the document review.

Representatives of NSL Renewable Power Private Limited and O & M Service providers were interviewed. The main topics of the interviews are summarized in Table below:

Interviewed organization	Interview topics
NSL Renewable Power Private Limited (Project Participant)	• Project implementation and changes; if any • Monitoring Plan • Monitored Data • Data recording and archiving • GHG calculation procedures • Resolution of CAR(s) and CL(s) • Change to the registered monitoring plan (if any)
Suzlon Energy Limited(SEL) and ReGen Powertech Private Limited (RPPL) (O & M Service providers)	• Metering System at the site, • Technical Equipment and operation • Monitoring • Data Recording and archiving • Calibration of measuring equipment • Data uncertainty and residual risks

2.4 Site Inspections

This is third verification of the project activity under VCS for the monitoring period starting from 01/10/2012 to 31/12/2013. The physical site visit for the verification period carried out by one team member on 13/03/2014.

The verification team reviewed all the records of the sold electricity and the Form B (issued by the BESCO; state electricity utility which is a government entity) for the current verification period and confirms that there is no change in the project design with respect to the previous verifications.

2.5 Resolution of Findings

The verification team confirms that there are no remaining issues or any material discrepancy in the registered documents on VCSA website and supporting documents mentioned under Annexure II of this report. However, during current verification period there were 03 Corrective Action Requests and 01 Clarification Requests raised and were subsequently closed by the verification team on the basis of correct and appropriate response by the Project participant. The closure of CAR(s) and CL are discussed under Annexure I of the verification report.

2.5.1 Forward Action Requests

There was no forward action request raised during the CDM validation stage. During current verification period, there was no outstanding discrepancy observed by the verification team. Hence no Forward Action Request was raised.

2.6 Eligibility for Validation Activities

Bureau Veritas Certification holds accreditation for validation of sectoral scope under which the current project activity falls.

3 VALIDATION FINDINGS

This is third periodic verification for the registered VCS project activity with project ID 706. Hence this section is not applicable.

3.1 Participation under Other GHG Programs

This is third periodic verification for the registered VCS project activity with project ID 706. Hence this section is not applicable.

3.2 Methodology Deviations

Not Applicable

3.3 Project Description Deviations

Not Applicable

3.4 Grouped Project

Not applicable as this is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

It has been observed by the verification team that the project involves the installation of 28 numbers of 1500 kW WTGs of ReGen make and 4 numbers of 2100 kW WTGs of Suzlon make in Chikkandavadi and Kallavangathihalli Village of Chitradurga district in the state of Karnataka, India. All the 32 WTG's are leading to a cumulative capacity of the project as 50.4 MW, which is same as described in the registered VCS PD (Ref/3/). The entire power generated by the project activity is exported to the southern regional grid of India with a firm energy purchase agreement with the Karnataka Power Transmission Corporation Limited (KPTCL).

The electricity exported and imported from the grid is recorded through metering points installed at grid controller station. There are 4 controller station points viz., NSLC III, NSLC IV, NSLC V and NSLC IV used to measure the net electricity supplied to the grid by all the 32 WTGs. All the WTGs are not provided with metering location and hence each controller points measure electricity supplied by more than one WTG. All meters are of bi-directional tri-vector type with an accuracy class of 0.2.

Apart from the readings taken at group controller points, the electricity export readings are also taken at the grid interconnection point or 66 kV substation namely NSLC I and NSLC II. Based on the two readings taken at group controller points and substation, state electricity utility prepares a monthly statement namely Form B of electricity supplied through each WTG after accounting for the transmission loss and import of electricity. The transmission loss has been calculated by the BESCOM/KPTCL personal based on electricity export readings measured at the group controller points and at the 66 kV substation and the same is provided along with the Form B. All the WTGs are owned by NSL Renewable Power Private Limited. Hence, the verification team confirms that the project activity has been implemented as per the description provided in the registered VCS PD (Ref/3/). The equipment necessary for GHG emission reductions are in place. During one instance in the current monitoring period set of meters were changed at metering point NSLC VI on 27/04/2013. The verification team verified the same during site visit and also confirmed from the meter change document issued by BESCOM (Ref/14/).

The inadequacies of Monitoring Report were reported in the CAR 1 in the protocol in Annexure I. The Project Participant responded with the revised monitoring report (Version 01.3, dated 23/05/2014) (Ref/2/) addressing the findings of the Verification Team along with the relevant supporting documents. The verification team verified the responses and closed CAR 1. The revised Monitoring Report addresses the issues satisfactorily and is in line with the applicable guidelines.

The verification team confirms that no information about the project activity provided in the final monitoring report is different from that stated in the registered VCS-PD, and which could have caused or is likely to cause any increase in the estimates of emission reductions during the future monitoring periods.

Compliance of Monitoring with the Monitoring Plan

The monitoring plan is in accordance with the UNFCCC approved methodology applied by the registered VCS project activity viz; ACM 0002, version 11.

The primary monitoring in the project activity is that of the net electricity supplied to the state electricity grid. The verification team hereby confirms that the registered monitoring plan is in accordance with the UNFCCC approved methodology applied by the registered VCS project activity. No revision in the monitoring plan or deviation request was necessary for the current verification period on this aspect.

Corresponding to the Section 4 of VCS version 03, v3.4, Bureau Veritas Certification can confirm that the monitoring plan is in accordance with the approved methodology including applicable tool(s) applied by the Project.

Thus the verification team confirms that the actual operation of the project activity is in line with the description in the registered VCS-PD. There was no other data or information provided in the monitoring report that was different from the description stated in the registered VCS-PD and having caused or likely to cause any increase in the estimates of emission reductions in the future monitoring periods.

The Project participant has confirmed that there are no GHG emission reductions or removals generated by the project have been included in any emissions trading program or any other mechanism that includes GHG allowance trading. Also have not claimed any other form of environmental credits nor has participated or was rejected under any other GHG programs. The Project participant has also provided undertaking (Ref/12/) to support the same in response verification team's clarification sought.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Monitoring of the project activity parameters has been carried out in accordance with the monitoring plan, contained in the registered VCS-PD.

The parameters required by the registered monitoring plan and the manner in which the verification team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters) including the values in the monitoring reports are described below:

- (a) Electricity supplied to the grid by the plant (EG_y) – The electricity exported and imported by all 32 WTGs of the project activity at each of the 4 metering points (namely NSLC III, NSLC IV, NSLC V, NSLC VI) is recorded monthly by representatives of the BESCO and Project Participant (Ref/10/). Based on the monthly electricity export recorded at group controller station meter and at the substation meter (TEG_y), the BESCO determines the transmission line loss, in accordance with the conditions stipulated in the PPA signed between them and the Project Participant. Based on this, the BESCO issues line loss calculation sheets, for the every month. The Joint Meter Reading Statements (known as Form B) is then submitted by the BESCO to the Project participant which indicates the electricity export, electricity import, transmission line losses and the net electricity exported value at individual grid controller station. The emission reduction calculations are based on the net electricity exported values at group controller stations, as indicated in the Form B. This determination is in line with the provision stated in the registered monitoring plan. Based on this Form B, the Project Participant raises an invoice to the BESCO, subsequent to which, the payments are released. The electricity generation value in the Form B issued by KPTCL/BESCO has been compared with the invoices raised by the project participant against KPTCL/BESCO¹ and a conservative value (among the value indicated in Form B and in Invoice) is considered for calculation of emission reduction. In this regard, the verification team has raised CL 1 and successfully closed the same after satisfactory response from the Project participant.
- (b) Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads (TEG_y) - The verification team noted that all the WTGs in the project activity are connected through two feeders to the sub-station which is dedicated to the project activity. There is a main and check meter of accuracy class 0.2s located in each of the two feeders at the receiving sub-station (NSCL I and NSCL II). At the time of site visit, the verification team noted that the sub-station meter, NSCL I, measure and record the total electricity exported by all the WTGs connected to group controller points, NSLC III and NSCL IV. Similarly, the sub-station meter, NSCL II, measure and record the total electricity exported by all the WTGs connected to group controller points, NSCL V and NSCL VI in the wind farm. The joint meter reading is taken here by representatives of the BESCO/KPTCL and Project Participant on a monthly basis. The purpose of this recording at substation is to deduce the transmission line losses in the electricity exported by the individual wind turbines in the wind farm. The verification team noted that this determination is, in accordance with the conditions stipulated in the PPA signed between them and the Project Participant. This was further crosschecked with the invoices (Ref/11/) raised by the Project participant on BESCO/KPTCL and was found to be correct.

¹ The verification team noted that there is minor difference in the net electricity values mentioned in Form B statements and the invoices. This difference is due to the fact that for invoicing the Project participant considers 115 % of import, which is in accordance with the provisions of PPA.

CAR 1 was raised by the verification team since the registered VCS PD has provided the monitoring of 2 parameters but the monitoring report provided by the project participant has stated only one parameter. In response to CAR 1 the project participant has provided both the parameters EG_y and TEG_y in the revised monitoring report. The same was verified by the verification team and found to be in line with VCS PD and hence based on satisfactory response and correction CAR 1 was closed.

Parameters determined ex-ante:

$EF_{CO_2,grid,y}$, emission factor for southern region grid - The emission factor for the entire crediting period of the Project activity has been determined ex-ante in the registered VCS-PD(Ref/3/). The emission factor value of 0.9451 tCO₂e/MWh used in the monitoring report has been verified against the VCS registered PD and found to be consistent. The value is referred from CEA database. CEA is the sole authority for the publication of such data in India. It is a part of the Ministry of Power of the Government of India and therefore, is a source of authentic and credible data for the purpose of the determination of the grid emission factor.

All records like monthly Form B (Ref/10/), Invoice raised by the Project participant (Ref/11/), commissioning certificates, Calibration certificates (Ref/13/), etc. related to the project activity operations are also well maintained by the Project Participant. The data was found to be recorded diligently.

As per the methodology ACM0002 Version 11 and the registered VCS-PD, the emission reductions for the Project are calculated as the baseline emissions minus the project emissions and leakage. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y = Emission reductions

BE_y = Baseline emissions

PE_y = Project emissions

LE_y = Leakage Emissions

Baseline Emissions

It is calculated as the product of Net electricity supplied to the grid multiplied with Grid Emission Factor and is determined using the following formula:

$$BE_y = EG_y * EF_y$$

$$= 137741 * 0.9451 = 130179 \text{ tCO}_2\text{e}$$

Where,

EF_y = GHG emission factor of the southern Grid, calculated ex-ante in the registered PD as 0.9451 tCO₂e/MWh

EG_y = Net electricity supplied to the grid (MWh)

Project Emissions

Project emission is considered to be nil which is in line with the applied methodology ACM 0002 version 11.

Leakage Emissions

No leakage needs to be considered according to ACM0002 Version 11

Emission reductions

The emission reductions during the monitoring period from 01/10/2012 to 31/12/2013 are calculated as:

$$ER_y = BE_y - PE_y - LE_y$$

$$= 130179 - 0 - 0$$

$$= 130179 \text{ tCO}_2\text{e}$$

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The verification team confirms that all parameters stated in the registered monitoring plan were monitored throughout the current verification period and data on the same was available.

The following actions were taken to ensure that the most conservative assumption theoretically possible has been made:

1. Ensured that the data that directly affect emission reductions are from official sources.
2. The values of net electricity exported to the grid as indicated in the Form B (Ref/10/) were also cross-checked with the invoices raised by the Project participant on BESCOM/KPTCL (Ref/11/). The verification team noted that there is minor difference in the net electricity values mentioned in Form B statements and the invoices. This difference is due to the fact that for invoicing the Project participant considers 115% of import, which is in accordance with the provisions of PPA.
3. The registered monitoring plan indicates the frequency of accuracy testing/ calibration of the main and check meters as once in a year. The energy meters of project activity are calibrated and sealed by testing division of BESCOM and Project participant has no role to play in the same. Following are the detail of the calibration of meters that took place during the current monitoring period.

Metering Location	Meter Serial No	Date of calibration	Comment	Delay
NSLC I	11071857 (MM) 11071859 (CM)	30/08/12 ² , 19/12/12, 26/12/13, 25/06/13, 30/08/13, 26/11/13, 26/02/14 ³	Error within permissible limits of error	NIL
NSLC II	47380073 (MM) 4961771 (CM)	30/08/12, 19/12/12, 26/12/13, 25/06/13, 30/08/13, 26/11/13, 26/02/14	Error within permissible limits of error	NIL
NSLC III	07022896 (MM) 07022921 (CM)	30/08/12, 19/12/12, 26/12/13, 25/06/13, 30/08/13, 26/11/13, 26/02/14	Error within permissible limits of error	NIL
NSLC IV	07022985 (MM) 07022986 (CM)	30/08/12, 19/12/12, 26/12/13, 25/06/13, 30/08/13, 26/11/13, 26/02/14	Error within permissible limits of error	NIL
NSLC V	09142342 (MM) 09141853 (CM)	30/08/12, 19/12/12, 26/12/13, 25/06/13, 30/08/13, 26/11/13, 26/02/14	Error within permissible limits of error	NIL
NSLC VI	067022900 (MM) 07022906 (CM)	30/08/12, 19/12/12, 26/12/13	Error within permissible limits of error	NIL

² Prior to current verification period

³ Post current verification period

Metering Location	Meter Serial No	Date of calibration	Comment	Delay
	11071865 ⁴ (MM) 13191363 (CM)	25/06/13, 30/08/13, 26/11/13, 26/02/14		

As evident from above, there was no instance of delay in calibration. However, there was meter change in the metering location NSLC VI on 27/04/13. The verification team verified the meter change document issued by BESCO (Ref/14/) which indicates that the due to the heavy lightning and wind, CT was damaged due to which check meter failed. The recorded readings from main meter were extracted before both the meters were changed. After installation of new meters again reading was taken. Project participant has provided both these Form B and verification team confirms them to be correct.

Verification team further observed that there have been no case of meter failure or meter change apart from the meters described above during the current verification period and hence confirms there have been no instances of data uncertainty in the current verification period.

- There were no major shutdown and/or emergencies situations during the current verification period. The verification team observed that there is no FAR raised during the validation of the project activity.

All the data was available and monitored in accordance with the registered monitoring plan. There is no instance of data not being available during the current verification period. The action taken to ensure that the most conservative assumption theoretically possible has been made by the project participant was to ensure that the data that directly affect emission reductions are taken from official sources.

Appropriate methods and formulae for calculating baseline emissions, have been followed. There are no project emissions to be considered as per the applied methodology and also since there is no transfer of equipment involved, leakage also do not apply. Hence the verification team confirms that the emission reductions claimed during the current monitoring period are conservative and reliable.

4.4 Non-Permanence Risk Analysis

Not Applicable

5 VERIFICATION CONCLUSION

⁴ Set of new main and check Meters installed on 27/04/13 replacing old set of meters.

The verification scope is an independent and objective review of the VCS Project description, the project's baseline study and monitoring plan and other relevant documents. The review is to verify the implementation of monitoring plan as defined in registered VCS PD. The period for verification is from 01/10/2012 to 31/12/2013 (inclusive of both the days).

The verification of the monitored data indicates the emission reductions and the amount for emission reductions for the monitoring period are provided below.

Monitoring Period		Total Emission Reductions Achieved (tCO ₂ e)
From	To	
01/10/2012	31/12/2012	24745
01/01/2013	31/12/2013	105434

The calculations of emission reductions are found to be correct. The baseline for the Southern regional grid has been taken for arriving at baseline emissions. The grid emission factor of 0.9451 tCO₂e/MWh for Southern regional grid was found to be correct.

Appropriate procedures for maintaining the confidentiality and safe custody of the validation or verification documentation and for retaining them for a period sufficient to meet the needs of the client, the responsible parties, the GHG programmes to which they subscribe, and in accordance with legal and professional requirements of record retention have been established.

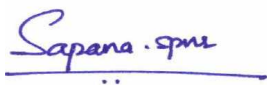
The verification team confirms that the project is implemented as planned and described in the Registered VCS PD. The monitoring mechanism is effective and reliable. The reported data are accurate and correct based on all the records provided to the verification team during the verification as provided in annexure-II. The installed equipment being essential for generating the emission reductions run reliably and the measuring equipment/instruments are well within the frequency of calibration.

Verification period: From *01 October 2012* to *31 December 2013*

Verified GHG emission reductions and removals in the above verification period:

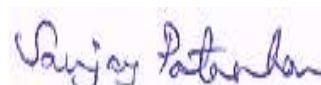
Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2012	24745	0	0	24745
2013	105434	0	0	105434

Total	130179	0	0	130179
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Ms. Sapana Pednekar
(Team Leader)
27/05/2014

Mumbai, India



Mr. Sanjay Patankar
(Internal Technical Review)
27/05/2014

Mumbai, India

ANNEXURE I: DETAILS OF CORRECTIVE ACTIONS AND CLARIFICATION REQUESTED

Draft report clarifications and corrective action requests by verification team	Reference/ Section	Summary of project owner response	Verification team conclusion
CAR 1 1) In section 1.9 of VCS-MR, information as per requirement of latest version of monitoring report template v3.3. is not provided 2) The details of the events that may have impacted the GHG Emission reductions during the current monitoring period are not provided 3) The value considered for parameter EG_y is from value measured at metering point NSLC I and NSLC II which is not in line with the method and source of document determined in the registered PD and previous verifications. Project participant to justify the reason for deviation taken during current monitoring period. 4) The monitored parameter TEG_y is not found to be considered under 'Monitored parameters' and is also inconsistent considering Registered PD and previous Verification documents.	1.9 of VCS-MR 2.1 of VCS-MR 3.1 of VCS-MR 3.1 of VCS-MR	The information as per requirement of latest version of monitoring report has been incorporated in the section 1.9 of revised monitoring report. The same has been supported with the undertaking letter from the client. There are no outages during the monitoring period. The same has been included in the revised monitoring report. The necessary corrections have been done in the revised monitoring report. The necessary corrections have been done in the revised monitoring report. Reply 2: The undertaking letter is attached with the revised responses.	1. The appropriate revisions are made in the monitoring report in section 1.9 and as per the information provided, the Project participant have not participated in any other GHG program nor any environmental credits or Emission trading program. However the undertaking letter from Project participant is not available to confirm the same. Hence point 01 is open. <u>DOE's II review:</u> The undertaking dated 15/04/2014 is provided by the Project participant and it confirms that the Project participant has not claimed under any other GHG program during the current monitoring period. Hence point 01 is closed. 2. Project participant has indicated that there were no outages during current monitoring period. Hence point 02 is closed. 3. The revision is made in appropriate manner and is in line with the registered PD. Hence point 03 is closed. 4. The parameter TEG_y is now included in the revised monitoring report and is found to be correct. Hence point 04 is closed. Based on satisfactory response provided by the Project participant CAR 01 is closed.

Draft report clarifications and corrective action requests by verification team	Reference/Section	Summary of project owner response	Verification team conclusion
CL 1 - The calibration certificates for the meters covering the current monitoring period are not provided. - During the site visit it was observed that the meter serial Nos at metering point NSLC VI were different as compared to the meters serial nos provided in the monitoring report version 01. Project participant to clarify on the discrepancy observed. - The invoices raised by NSL on BESCOM/KPTCL that are referred in registered PD for method of cross checking the data are not provided. - Further when the values of Net Electricity generation indicated in Form B were crosschecked with the values stated in the subsequent monthly invoices raised by the Project participant, these values do not match with each other. Project participant to clarify on the discrepancy observed and what is the approach followed by the Project participant to ascertain that the Emission Reduction calculation is following the principle of conservativeness.	3.2 of VCS-MR 3.2 and 3.3 of VCS-MR	The calibration certificates for the meters covering the monitoring period have been submitted to DOE for verification. The meter serial number has been corrected in the revised Monitoring report. The invoices raised by NSL have been submitted to DOE for verification. Reply 2: The following documents have been submitted to DOE: - Calibration certificates - Meter change documents - Copy of Invoices - Project participant has revised the emission reduction calculation based on the lowest value of either B-Form or Invoice raised by the project participant to the BESCOM. Hence the conservative values have been considered.	- The certificate for calibration that was carried out on 30/08/2012 which is prior to current monitoring period to be provided to ascertain that the meters were operating within permissible limits till the subsequent calibration that took place on 19/12/2012. Both these dates' certificates to be provided and information also to be included in the relevant sections in monitoring report and ER sheet. Similarly calibration details for 26/02/2014 also to be provided. <u>DOE's II review:</u> The calibration certificates are provided to the verification team. Verification team confirms that the meters prior and post current monitoring period were well within the limits of its accuracy. The details of the same are also incorporated in the revised monitoring report. Hence point 01 is closed. - Meter change documents supporting the same not provided. Hence point 02 is open. <u>DOE's II review:</u> The meter change document is provided to the verification team. Hence point 02 is closed. - The invoices raised by NSL are provided to the verification team. However, could not verify as the revised ER sheet is awaited. Hence point

Draft report clarifications and corrective action requests by verification team	Reference/ Section	Summary of project owner response	Verification team conclusion
			03 is open. <u>DOE's II review:</u> The revised ER sheet is provided to the verification team and the value of EGy is cross checked with the invoice copies. Point 03 is closed. 4. The Project participant has considered the lower value of EGy among Form-B and Invoice raised by the Project participant. By the approach taken by the Project participant, verification team confirms that this leads to conservative calculation of Emission Reduction. Therefore point 04 is closed. Based on the satisfactory response and documents provided by the Project participant, CL 01 is vacated.
CAR 2 The details of all the calibration that have taken place during current monitoring period are not included in section 3.3 or Annexure 1	3.3 / Annexure I of VCS-MR	The calibration details of all the energy meter has been included in the Annexure I of the Monitoring report. Reply 2: The dates of calibration that took place prior and post monitoring period has been incorporated in the revised MR.	The dates of calibration that took place prior to start of current monitoring period and post current monitoring period are not included. CAR 02 is open. <u>DOE's II review:</u> The dates of calibration that took place prior to the start and post current verification period are now incorporated in the revised monitoring report and are found to be correct. Hence CAR 2 is vacated.

Draft report clarifications and corrective action requests by verification team	Reference/ Section	Summary of project owner response	Verification team conclusion
CAR 3 Unit for Emission Factor, etc. are not included.	ER Sheet	The unit for emission factor has been included in the revised ER calculation sheet.	Will be verified once revised ER sheet is received. <u>DOE's II review:</u> The emission reduction sheet is revised to include the unit of emission reduction factor, the dates in the format of DD/MM/YYYY and was found to be appropriate. Hence CAR 03 is closed.

ANNEXURE II: DOCUMENTS REFERRED DURING VERIFICATION AND VALIDATION OF THE PROJECT ACTIVITY

- /1/ VCS Monitoring Report, version 01, dated 24/01/2014
- /2/ Final VCS MR version 1.3 dated 23/05/2014
- /3/ Final registered VCS PD version 05 dated 31/05/2010
- /4/ Validation report vide ref V-3-I-01-L-0108 (revision 01) dated 01/06/2010 issued by Perry Johnson Registrars CDM Inc.
- /5/ VCS Monitoring report template Current Version: v3.3 dated on 8 October 2013
- /6/ Verified Carbon Standard Version 3, v3.4 dated 8 October 2013 v.3.3
- /7/ VCS Program Guide Version 3 v3.5 dated 8 October 2013
- /8/ Emission Reduction Calculation Sheet
- /9/ Commissioning certificate for all the WTGs of the project activity
- /10/ Monthly Form B issued by BESCOM/KPTCL for the current verification period
- /11/ Copy of all invoices raised to BESCOM by Project participant for net electricity exported to the grid for the current verification period
- /12/ Declaration from NSL Renewable Power Private Limited that the project shall not claim credits for the same period under any other GHG program.
- /13/ Calibration certificate for year 2012, 2013 and 2014 issued by BESCOM
- /14/ Meter Replacement report vide ref no AEE//NCE/48-49 dated 02/05/2013 for Main and Check meter replaced on 27/04/2013 issued by BESCOM
- /15/ Previous 2 verification documents

ANNEXURE III: LIST OF PERSONS INTERVIEWED

List persons interviewed during the verification process or persons that contributed with other information that are not included in the documents listed above.

- /1/ Mr. M.R.V Ravikiran Engineer, NSL Renewable Power Private Limited
- /2/ Mr. P.S Chandrashekar Engineer, NSL Renewable Power Private Limited
- /3/ Mr. Muthukumar Rathinam Manager – Sustainability and Climate Change , Emergent Ventures India Private Limited

ANNEXURE IV: Curricula Vitae of the Verification Team Members

Ms. Sapana Pednekar - Team Leader

Bureau Veritas Certification, Lead Verifier - Climate change

She is a Post Graduate in Environmental Science from University of Pune, India and holds a PGDBA in Financial Management from Welinkars School of Management. She has total Industrial work experience of 8 years in the field of environmental studies of which more than 4 years' experience is in the field of CDM and VCS. She is working in Bureau Veritas Certification (India) Pvt. Ltd. for last more than 3 years and has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of more than 30 CDM/ VCS project activities. She has undergone and successfully completed ISO 14001:2004 standard, ISO 50001:2011 standard Lead Auditor Courses and ISO 14064:2006 Standard Lead verifier course.

Mr. Pramod Kamble – Team Member

Bureau Veritas Certification, Lead Verifier - Climate change

He is a graduate in Chemical Engineering from Institute of Chemical Technology (ICT), Mumbai. He has prior experience of more than 5 years in climate change GHG reduction schemes such as CDM, VCS and CCX projects development, consultancy and independent third party auditing. To augment above experience he has undergone intensive training on Clean Development Mechanism and completed CDM Verifier/ Lead Verifier training course. Also he has successfully completed detailed intensive Lead Verifier training on ISO 14064:2006 and ISO 14001:2004. He has hands on experience of more than 90 mandays at site carrying out energy audits for energy industries and buildings. The energy audits were carried out in BEE identified Ceramic cluster of Morbi, Gujarat for more than 30 SMEs. Also he was part of team to carry out energy audits for 3 major government hospitals of Mumbai represented by Municipal Corporation of Greater Mumbai (MCGM). At present he is working with Bureau Veritas Certification (I) Pvt Ltd in climate change division and involved in the Validation/verification of more than 20 CDM and VCS projects.

Sanjay Patankar, Internal Technical Reviewer

Bureau Veritas Certification, Lead verifier – Climate Change

Educational qualifications: B.E. (Mech.) M.E. (Mech.)

He has over 20 years of experience in engineering manufacturing industry covering various functions like enterprise management, product design, engineering, tool & die design, improvements in the production shop, quality assurance & control and systems planning and implementation, including ISO 9001 based quality management systems. Working for the last 3 years in Bureau Veritas Certification (India) Pvt. Ltd. as Lead Auditor for ISO 9001, 14001 and OHSAS 18001 standards/specifications.