



3.5 MW MANUNI HYDRO ELECTRIC PROJECT IN HIMANCHAL PRADESH BY WINSOME TEXTILE INDUSTRIES LTD



Document Prepared By: KBS Certification Services Pvt. Ltd.

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Summary:

“Winsome Textile Industries Ltd” has commissioned “KBS Certification Services Pvt. Ltd.” to perform the 1st periodic verification for the monitoring period 31/03/2017 to 31/12/2019 of the project, “3.5MW Manuni Hydro Electric Project in Himanchal Pradesh by Winsome Textile Industries Ltd” with regard to the relevant requirements for Verified Carbon Standard (VCS) Project Activity (PA); to attain real, measurable, additional and permanent emission reductions.

The project activity is power generation from a run-of-river 3.5 MW hydroelectric project developed by M/s Winsome Textile Industries Ltd. Which is based on Manuni Khad stream, a tributary of river Beas at village Khaniara, Dharamshala, District Kangra, Himachal Pradesh. The project activity comprises 2 Numbers of Pelton Turbines each with a generator output capacity of 1750 kW for generation of electricity.

The project activity is operational since commissioning (31/03/2017) and during first monitoring period i.e. from 31/03/2017 to 31/12/2019, the project activity has injected 31857.22 MWh electricity to grid, thereby resulted in emission reduction of 29,477 tCO₂e. The monitoring period subject to this monitoring report is inclusive of first and last day of period.

A risk-based approach has been followed to perform the verification of the project activity. In the course of the verification 03 Corrective Action Requests (CAR) and 04 Clarification Requests (CL) were raised and successfully closed out.

The verification is based on the VCS MR, proof of title, proof of right, additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the verification team by project proponent.

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

- The project fulfils criteria of VCS Standard Version 4.0.
- The project is in line with all relevant VCS requirements.
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board and VCS Association;
- All information and references relevant to the project activity resulting in emission reductions;
- The monitoring plan is transparent, adequate and in line with applied baseline and monitoring methodology of AMS-I.D “Grid connected renewable electricity generation, version 18”.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 29,477 tCO₂e emission reductions during period 31/03/2017 to 31/12/2019 (including both the days).

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1 INTRODUCTION

1.1 Objective

KBS has been commissioned by 'Winsome Textile Industries Ltd' to perform first periodic verification of its registered VCS project '3.5MW Manuni Hydro Electric Project in Himanchal Pradesh by Winsome Textile Industries Ltd', for the reported GHG emission reductions for the given monitoring period 31/03/2017 – 31/12/2019 (both dates included). The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project meets the VCS verification requirements as per the VCS rules;
- The project activity has been implemented and operated as per the validated VCS PD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of monitoring report /02/, VCS project description (VCS PD)/01/, including the monitored data, validation report and other relevant documents made available to verifier and information collected through performing interviews during on-site assessment of the project activity.

The project is assessed against the requirements of VCS standard version 4.0 and related rules and guidance. KBS has, based on the recommendations in the latest version of Verified Carbon standard, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

The aspects to be covered under the purview of verification are:

- Ensure that the project activity has been implemented and operated as per the registered VCS PD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place as per the documents provided by the client and on-site visit;
- Ensure that the monitoring report and other supporting documents provided are complete
- Ensure that the practiced monitoring system and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved CDM methodology;
- Evaluate the data recorded and stored are as per the monitoring methodology.

1.3 Level of Assurance

- ☒ Reasonable level of assurance

1.4 Summary Description of the Project

The project activity is power generation from a run-of-river 3.5 MW hydroelectric project developed by M/s Winsome Textile Industries Ltd. (WTIL) which is based on Manuni Khad stream, a tributary of river Beas at village Khaniara, Dharamshala, District Kangra, Himachal Pradesh.

The installed project technology comprises of 2 Pelton Turbines each with a generator output capacity of 1750 kW for generation of electricity. The purpose of the project activity is to produce renewable energy using hydro power for captive consumption at the manufacturing unit of WTIL in Baddi, the wheeling agreement for which has been signed with Himachal Pradesh State Electricity Board (HPSEB).

The project activity avoids burning of fossil fuels and thereby mitigates GHG emission during the process. The overall electricity injected from the plant to the grid in the current monitoring period i.e. from 31/03/2017 to 31/12/2019 is 31857.22 MWh, which has resulted **29477** tCO₂e GHG emission reduction.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The project activity applies approved CDM methodologies AMS-I.D: Grid connected renewable electricity generation, version 18/08/, categorized under sectoral scope 1 “Energy Industries”. The verification consisted of the following phases:

- Completeness check and desk review of the Project Description, Monitoring Report.
- Onsite inspection, interview with project representatives and issuance of findings.
- Resolution of findings followed by preparation of the final verification report and opinion.

2.2 Document Review

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section ‘References’.

2.3 Interviews

Please refer section 2.4, where complete list of interviewed personnel and key points discussed is provided.

2.4 Site Inspections

A site visit is undertaken by members of verification team, involving but not limited to,

- An assessment of the implementation and operation of the proposed VCS project activity as per the approved VCS PD/01/;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;

- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The site visit for this verification assessment was undertaken by Ms. Shikha Sharma (Verifier) and details are mentioned below:

Location:	Khaniara, Dharamshala, District Kangra, Himachal Pradesh	
Dates:	14/02/2020	
Key points discussed:	Name of person, interviewed	Designation, Organization
Project description, technological measures Implementation, Calibration, Monitoring and VCS Requirements, Monitoring team, monitoring procedure.	Mr. Sanjeev Mittal	GM- Engg (Winsome Textile Industries Ltd.)
	Mr. Dinkar Sharma	Sr. Manager of the plant
	Mr. Ravinder Rohila	HR, Winsome Textile Industries Ltd.
	Mr. Sumit Kumar	Fitter
	Mr. Sanjay Kumar	Store Keeper
	Mr. Rakesh Kumar	Store Keeper

2.5 Resolution of Findings

KBS applies the risk-based approach aimed at focusing on high risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the verification report was submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective action request (CAR):

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- the Voluntary Carbon Standard's requirements have not been met, or;
- there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CL):

- Information is insufficient or not sufficiently clear to determine whether the applicable VCS requirements have been met.

FARs is to be raised to highlight issues related to project implementation that require review during the first verification of the project activity. FARs does not relate to VCS requirements for registration.

CARs and CLs are to be resolved or closed out if the PP modifies the project description, rectifies the MR or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for issuance under VCS registry.

The monitoring report was revised addressing the CARs & CLs issued by KBS. After reviewing the revised and resubmitted MR/02/; resolving the CARs & CLs raised and outstanding concerns, KBS issues this final verification report and opinion.

03 CAR and 04 CL found during verification and closed satisfactorily. The list of CARs/CLs raised and the response provided, the means of verification, reasons for their closure and references to correction in the MR are provided in appendix 2 of this report. The revised MR /02/ with changes incorporated as per the issues raised were rechecked with the documentary evidences and found to be inline.

2.5.1 Forward Action Requests

No FAR was raised during this monitoring period.

2.6 Eligibility for Validation Activities

The validation is separately conducted by another VVB and the separate validation report issued and approved by the VCS association.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project is only registered under VCS program. It has been confirmed by the project participant that the VERs will be claimed only from the current VCS programme only. The declaration is submitted from

the project participant during the validation that the project will not claim any ERs from any other programme.

3.2 Methodology Deviations

The verification team confirms that the VCS PD complies with the requirements in the applied monitoring AMS-I.D: Grid connected renewable electricity generation, version 18/08/. Therefore, no methodology deviations are applied during the monitoring period.

3.3 Project Description Deviations

The project activity is implemented and operated as per registered VCS PD/01/ and no deviation taken during current monitoring period.

3.4 Grouped Project

Project activity is a not a grouped project activity, hence this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is power generation from a run-of-river 3.5 MW hydroelectric project developed by M/s Winsome Textile Industries Ltd. (WTIL) which is based on Manuni Khad stream, a tributary of river Beas at village Khaniara, Dharamshala, District Kangra, Himachal Pradesh. The project activity installs 2 Pelton Turbines each with a generator output capacity of 1750 kW for generation of electricity. This generated electricity has been supplied to the grid and used for captive consumption at the manufacturing unit of WTIL in Baddi through a PPA /12.1/ & Wheeling and Banking Agreement & /12.2/ with Himachal Pradesh State Electricity Board (HPSEB). The project activity has started its construction in 2011 and commissioned both the turbine on 31/03/2017 which has been verified from the commissioning certificate /11/ and found that the start date is in compliance with the VCS standard and guidelines/04//05/. The ownership of the plant has been verified from commissioning certificate /11/, and Wheeling and Banking Agreement /12/.

During the on-site visit /26/ and from the document review, Verification team has found that the installed technologies are as per the approved PDD /01/. Verification team has checked the total installed capacity till the end of this monitoring period which is in compliance with the approved PDD /01/ and has been verified from the commissioning certificate/11/.

The project activity has injected 31857.22 MWh electricity to grid during current monitoring period i.e. from 31/03/2017 to 31/12/2019 which has been verified from the Joint Meter Readings /13/ and electricity invoices/15/. Further it was noticed that during the monitoring period the project activity operated under normal conditions and no shutdown was reported. Same has been checked from the operational data during site visit/26/.

Finding: CL 01, CL 02 & CL 04 was raised and successfully closed. Refer to Appendix 2 of this report.

4.2 Safeguards

4.2.1 No Net Harm

No negative environmental and socio-economic impacts identified by the project proponent. Verification team confirms that the project doesn't include any such impacts. There is no net harm.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation was conducted during validation of project activity. The meeting was held near Manuni Hydro Electric Project in Himachal Pradesh. The local stakeholder meeting was conducted prior to the start of validation activities with VVB. Also, during current monitoring period no complaints were raised by stakeholders as verified from the interviews with PP, also no issues were identified in previous stakeholder meeting, which requires change in process or mitigation measures.

4.3 AFOLU-Specific Safeguards

This is a non-AFOLU project, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Monitored Parameters:

Assessment of monitoring procedures for all monitoring parameters is discussed below:

- Data/Parameter:** $EG_{P,J,Y}$ (Quantity of net electricity generation supplied by the project plant to the grid in year y)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Calculation of baseline emissions
<i>Monitoring equipment</i>	Monitoring: ABT meters Monitoring frequency: Continuous monitoring, Monthly recording

	Responsibility: Plant Technician Calibration frequency: As verified by the verification team, the meter accuracy class and calibration interval is under purview of state electricity board and PP do not have any control on it. Verification team has verified the installed meters during the on-site visit /26/ and found OK. Details of the previous meters are as follows: <table><tr><td></td><td>Main Meter</td><td>Check Meter</td></tr><tr><td>Make</td><td>L&T</td><td>L&T</td></tr><tr><td>Type</td><td>ER300P</td><td>ER300P</td></tr><tr><td>Serial Number</td><td>10281860</td><td>13192191</td></tr><tr><td>Accuracy class</td><td>0.2s</td><td>0.2s</td></tr><tr><td>Date of Calibration</td><td>20/02/2017</td><td>20/02/2017</td></tr><tr><td>Validity</td><td>1 year</td><td>1 year</td></tr></table> The above meters have been replaced as confirmed from the test report /10.1/ dated 01/02/2018 by ABT meters as per details below <table><tr><td></td><td>Main Meter</td><td>Check Meter</td></tr><tr><td>Make</td><td>Secure</td><td>Secure</td></tr><tr><td>Type</td><td>3 phase 4W</td><td>3 phase 4W</td></tr><tr><td>Serial Number</td><td>HPU06489</td><td>HPU06490</td></tr><tr><td>Accuracy class</td><td>0.2s</td><td>0.2s</td></tr><tr><td>Date of Calibration</td><td>23/12/2017</td><td>23/12/2017</td></tr><tr><td>Validity</td><td>5 years</td><td>5 years</td></tr></table> The calibration of above meters are valid for the current monitoring period and the latest calibration dates have been checked from the calibration records /10/.		Main Meter	Check Meter	Make	L&T	L&T	Type	ER300P	ER300P	Serial Number	10281860	13192191	Accuracy class	0.2s	0.2s	Date of Calibration	20/02/2017	20/02/2017	Validity	1 year	1 year		Main Meter	Check Meter	Make	Secure	Secure	Type	3 phase 4W	3 phase 4W	Serial Number	HPU06489	HPU06490	Accuracy class	0.2s	0.2s	Date of Calibration	23/12/2017	23/12/2017	Validity	5 years	5 years
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Type	3 phase 4W	3 phase 4W																																									
Serial Number	HPU06489	HPU06490																																									
Accuracy class	0.2s	0.2s																																									
Date of Calibration	23/12/2017	23/12/2017																																									
Validity	5 years	5 years																																									
Measuring/Reading/ Recording frequency	Continuous monitoring of the electricity generated by the project plants through installed meters and monthly values are reported for ER calculation. The measuring/recording method is in compliance with the registered PDD /01/.																																										

	The measuring/reading and recording method was discussed during the on-site visit and found OK.
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	Monthly meter readings are taken from the main and check meter installed at metering point and certified by the representatives of SEB Officials and the representatives of the project proponent. Verification team has checked the monthly values of injected generation data /14/ with the ER sheet /03/ and found consistent. The injected generation data has been verified from the JMR/13/ for 11 months, by electricity invoices/15/ for the rest of the monitoring period, and has been back calculated from the electricity invoices by subtracting the transmission and distribution losses (LADF loss 1% and STU loss 6.75 %) which were found to be in compliance with the tariff orders of H.P Electricity Regulatory Commission /21/.
<i>Verified value</i>	31857.22 MWh
<i>Cross checks</i>	The QA/QC is conducted through cross checking with JMR /13/, sales electricity receipts/invoices/15/ as verified by the verification team.
<i>QA/QC procedures applied</i>	The calibration of all the meters is being undertaken at required intervals specified by DISCOM/CEA and faulty meters will be duly replaced immediately as verified by the verification team. The QA/QC is conducted through cross checking with invoices/15/.

2. Data/Parameter: $QC_{\text{diesel},y}$ (Volume of diesel used in year y)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Calculation of project emission
<i>Monitoring equipment</i>	Monitoring: Volume gallon Monitoring frequency: Each filling and monthly aggregation Responsibility: Plant Technician Calibration frequency: The volume of diesel used is monitored based on each filling using gallon of fixed volume. The same has been cross-checked by the verification team with the diesel consumption record /20/.
<i>Measuring/Reading/Recording frequency</i>	Log book data for the each filling and monthly aggregation values are reported for ER calculation. The measuring/reading and recording method was discussed during the on-site visit and found OK.

<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	Data is obtained from the log book/09/, diesel consumption record/20/.
<i>Verified value</i>	647 Litres
<i>Cross checks</i>	The details have been cross checked with the log book/09/, diesel consumption record/20/.
<i>QA/QC procedures applied</i>	NA

Parameters not monitored/ex-ante:

1. $EF_{grid,OM,y}$ (tCO₂/MWh)

Operating Margin CO₂ emission factor for the Indian Grid in year y

	Discussion and verification assessment
Purpose of data	Calculation of baseline emissions
Verified value	0.97839 (The value used is calculated ex-ante as generation based weighted average of last three years of the operating margin provided in the CEA database/23/.)
Source of value	Validated ex-ante.
Justification	Values are checked from registered VCS PD/01/ and validation report/27/.

2. $EF_{grid,BM,y}$ (tCO₂/MWh)

Build Margin CO₂ emission factor for the India Grid in year y

	Discussion and verification assessment
Purpose of data	Calculation of baseline emissions
Verified value	0.870 (based on data for the most recent year provided in the CEA database/23/)
Source of value	Validated ex-ante.

Justification	Values are checked from registered VCS-PD/01/ and validation report/27/.
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3. $EF_{grid,CM,y}$ (tCO₂/MWh)

Combined Margin CO₂ emission factor for the India Grid in year y

	Discussion and verification assessment
Purpose of data	Calculation of baseline emissions
Verified value	0.9254 tCO ₂ /MWh (Based on Operating Margin (OM) and Build Margin (BM) published by Central Electricity Authority (CEA) of India/23/)
Source of value	Validated ex-ante
Justification	Values are checked from registered VCS-PD/01/ and validation report/27/.

4. $NCV_{diesel,y}$ (GJ/Ton)

Net calorific value of diesel

	Discussion and verification assessment
Purpose of data	Calculation of project emissions
Verified value	43.3 GJ/Ton
Source of value	Validated ex-ante
Justification	Values are checked from registered VCS-PD/01/ and Table 1.2 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories/24/.

5. $EF_{CO_2,diesel,y}$ (tCO₂/TJ)

CO₂ Emission Factor of Diesel

	Discussion and verification assessment
Purpose of data	Calculation of project emissions
Verified value	74.8 tCO ₂ /TJ
Source of value	Validated ex-ante

Justification	Values are checked from registered VCS-PD/01/ and Table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories/25/.
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Finding: CL 01 & CL 03 was raised and successfully closed. Refer to Appendix 2 of this report.

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered PD;
- The monitoring complies with the requirement of the applied methodologies;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD;
- The values included in the monitoring report and corresponding emission reduction sheets are verified and included under each monitoring parameter, wherever appropriate;

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The applied formulae and the method for calculation of baseline emissions are in accordance with the registered VCS PD/01/, and are in line with the requirements of the applied methodology (AMS: I.D. Grid connected renewable electricity generation, version 18)/08/. The formulae and the methods referred in the MR and the emission reduction calculation spread sheet for estimation of emission reduction complies with the corresponding formulae and methods in the registered VCS PD/01/. The ex-ante and validated fixed value of grid emission factor i.e. combined margin of the emission factor, (0.9254 tCO₂e/MWh, registered VCS PD/01/) is taken into account for the calculation of baseline emissions. The assessment of data and the calculation of GHG emission reduction in the MR/02/ and the emission reduction excel sheet/03/ have been verified based on the monthly net electricity export data.

As per registered VCS PD/01/, the baseline emission (BE_y) is:

The baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{CO_2,grid,y}$$

Where,

$$EG_{PJ,y} = EG_{PJ,facility,y}$$

$$EG_{PJ,y} = 31857.22 \text{ MWh/year}$$

$$EF_{CO_2,grid,y} = EF_{CM,y} = 0.9254 \text{ tCO}_2\text{e/MWh}$$

Monthly electricity supplied to grid during current monitoring period i.e. from 31/03/2017 to 31/12/2019 as verified from the JMR /13/ and electricity invoices /15/ -

Hence, baseline emission for year 2017

$$BE_y(2017) = 9015.800 \times 0.9254 = 8343.22 \text{ tCO}_2\text{e}$$

$$BE_y(2017) = 8343 \text{ tCO}_2\text{e (rounded down)}$$

Baseline emission for year 2018

$$BE_y(2018) = 9162.683 \times 0.9254 = 8479.15 \text{ tCO}_2\text{e}$$

$$BE_y(2018) = 8479 \text{ tCO}_2\text{e (rounded down)}$$

Hence, baseline emission for year 2019

$$BE_y(2019) = 13678.738 \times 0.9254 = 12658.30 \text{ tCO}_2\text{e}$$

$$BE_y(2019) = 12658 \text{ tCO}_2\text{e (rounded down)}$$

Total baseline emission during current monitoring period i.e. 31/03/2017 to 31/12/2019

$$BE_y = 29480 \text{ tCO}_2\text{e}$$

Verification team has checked the baseline emission calculation and found correct. The formulas used are consistent with the registered PDD /01/. All the ex-ante parameters are correctly used in the ER sheet /03/ for the ER calculation. All the monitoring parameters are monitored as per the requirement of the registered PDD /01/ and correctly used under the ER sheet /03/. The roles and responsibility has been properly defined and employees are aware of their roles and responsibility as verified during the on-site visit interview and the observation.

Project emissions:

There diesel consumption during current monitoring period is 647 litres, hence project emission during current monitoring period is 3 tCO₂e,

As per registered VCS PD/01/, the project emission (PE_y) is:

$$PE_{FC,j,y} = \sum FC_{i,j,y} \times CO_{EFi,y}$$

Where,

$$CO_{EFi,y} = NCV_{i,y} \times EF_{CO2,i,y}$$

$$NCV_{i,y} = 43.3 \text{ GJ/Ton (IPCC default values)}$$

$$EF_{CO2,diesel,y} = 74.8 \text{ tCO}_2\text{/TJ (IPCC default values)}$$

Density of diesel =0.84 Kg/liter

Quantity of diesel used during current monitoring period i.e. from 31 March 2017 to 31 Dec 2019 as verified from the fuel records /20/ is

Year	2017	2018	2019
Diesel consumption (Liters)	251	201	195

Project emission in year 2017:

$$PE_{FC,diesel,2017} = 251 \times 43.3 \times 74.8 \times 0.84 \times 10^{-6}$$

$$PE_{FC,diesel,2017} = 0.682 \text{ tCO}_2\text{e}$$

$$PE_{FC,diesel,2017} = 1.0 \text{ tCO}_2\text{e (rounded up)}$$

Project emission in year 2018:

$$PE_{FC,diesel,2018} = 201 \times 43.3 \times 74.8 \times 0.84 \times 10^{-6}$$

$$PE_{FC,diesel,2018} = 0.546 \text{ tCO}_2\text{e}$$

$$PE_{FC,diesel,2018} = 1.0 \text{ tCO}_2\text{e (rounded up)}$$

Project emission in year 2019:

$$PE_{FC,diesel,2019} = 195 \times 43.3 \times 74.8 \times 0.84 \times 10^{-6}$$

$$PE_{FC,diesel,2019} = 0.530 \text{ tCO}_2\text{e}$$

$$PE_{FC,diesel,2019} = 1.0 \text{ tCO}_2\text{e (rounded up)}$$

Therefore,

Total project emission has been calculated as shown below:

$$PE_y = PE_{FC,diesel,2017} + PE_{FC,diesel,2018} + PE_{FC,diesel,2019}$$

$$PE_y = 1 \text{ tCO}_2\text{e} + 1 \text{ tCO}_2\text{e} + 1 \text{ tCO}_2\text{e}$$

$$PE_y = 3 \text{ tCO}_2\text{e}$$

Verification team has checked the project emission calculation and found correct. The formulas used are consistent with the registered PDD /01/. All the monitoring parameters have been correctly used in the ER sheet /03/ for the ER calculation. All the monitoring parameters are monitored as per the requirement of the registered PDD /01/ and correctly used under the ER sheet /03/. The roles and responsibility has been properly defined and employees are aware of their roles and responsibility as verified during the on-site visit interview and the observation.

Leakage emissions:

The project activity does not involve equipment transfer from another activity thus there are no leakages to be accounted for this project activity.

$$LE_y = 0 \text{ tCO}_2\text{e}$$

All the emission reduction calculations have been verified from the submitted ER sheet /3.2/ and found OK.

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)
2017	8343	1	0	8342
2018	8479	1	0	8478
2019	12658	1	0	12657
Total	29480	3	0	29477

Finding: CAR 02 was raised and successfully closed. Refer to Appendix 2 of this report.

4.6 Non-Permanence Risk Analysis

Not applicable to the project activity.

5 VERIFICATION CONCLUSION

KBS Certification Services Pvt. Ltd. has been contracted 'Winsome Textile Industries Ltd' to undertake independent first verification and certification for the greenhouse gas (GHG) emission reductions reported from the "Manuni Hydro Electric Project in Himanchal Pradesh by Winsome Textile Industries Ltd" for the monitoring period 31/03/2017 – 31/12/2019 (including both the days). The verification is based on the validated VCS PD and the monitoring report for this project. Our verification approach was based on the requirements as defined under the VCS Standard Version 4.0.

The management of the “Winsome Textile Industries Ltd” is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report, Version 02 and dated 21/02/2020. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the ‘Winsome Textile Industries Ltd’. The development and maintenance of records and reporting procedures are in accordance with the Final Monitoring Report, Version 02 and dated 21/02/2020.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 31/03/2017 – 31/12/2019 based on the reported emission reductions in the Final Monitoring Report Version 02 and dated 21/02/2020 /2.2/ for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS 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 this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following;

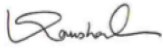
Verification period: From 31/03/2017 – 31/12/2019 (including both the days)

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)
2017	8343	1	0	8342
2018	8479	1	0	8478
2019	12658	1	0	12657
Total	29480	3	0	29477

The emission reduction during current monitoring period was found to be lower than ex-ante estimation in registered PD/03/ for current monitoring period (1006 days) i.e. 48,561 tCO₂e. The actual emission reduction achieved i.e. 29477 tCO₂e is 39.30% lower than ex-ante estimation for same period due to lower PLF achieved.

Date: 06/03/2020



Signature

Kaushal Goyal;

Managing Director

(KBS Certification Services Pvt. Ltd.)

APPENDIX 1: REFERENCES

S. No.	Name of document (Verification Process)
/1/	VCS PD version 3 dated 25/03/2019
/2/	/2.1/ VCS MR Version 01 dated 17/01/2020 /2.2/ VCS MR Version 02 dated 21/02/2020
/3/	/3.1/ ER spread-sheet dated corresponding to MR Version 01 /3.2/ ER spread-sheet dated corresponding to MR Version 02
/4/	VCS Verified Carbon Standard: VCS Program Guide, VCS Version 4.0
/5/	VCS Verified Carbon Standard: VCS Standard, VCS Version 4.0
/6/	Audit plan dated 12/02/2020 sent to PP for the site inspection.
/7/	VCS-PD Form filling guidelines
/8/	AMS I.D. Version 18
/9/	Plant Log book details.
/10/	Meter Calibration documents- /10.1/ Test report no. RTL/CAL201702019/317 DATED 21/02/2017 /10.2/ Test report by Himachal Pradesh State Electricity Board dated 23/02/2017
/11/	Commissioning certificate stating the commercial operation date to be 31/03/2017
/12/	Short term Power Purchase Agreement between Himachal Pradesh state electricity board Limited and M/s Winsome Textile Industries Ltd., dated 22/03/2017 /12.2/ Agreement for wheeling, Banking and Captive use of power between Manuni H.E.P and Himachal Pradesh State Electricity Board and M/s Winsome Textile Industries Ltd., Dated 30/03/2000
/13/	JMR March 2017- January 2018
/14/	Details of Power Units Injected in 33 KV Sub Station Sidhpur of HPSEBL by WTIL Manuni HEP
/15/	/15.1/ Excel sheet with electricity bill from May 2018-Dec 2019 /15.2/ Invoice copy of the electricity bill for Sept 2018 /15.3/ Invoice copy of the electricity bill for Dec 2018 /15.4/ Invoice copy of the electricity bill for May 2019 /15.5/ Invoice copy of the electricity bill for July 2019 /15.6/ Invoice copy of the electricity bill for Oct 2019 /15.7/ Invoice copy of the electricity bill for Dec 2019
/16/	Monitoring manual
/17/	Technical details for the project activity equipments /meters
/18/	Training records
/19/	Monthly meter readings, ABT Meter report by MRI
/20/	Diesel consumption records
/21/	Tarrif orders from H.P Electricity Regulatory Commission
/22/	Tool to calculate the emission factor for an electricity system (Version 07.0.0)
/23/	Central Electricity Authority of India's (CEA) "Baseline Carbon Dioxide Emission Database Version 13.0
/24/	Table 1.2 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
/25/	Table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories

- /26/ Onsite assessment including physical verification of measuring and monitoring procedure, interviews and data/log review dated 14/02/2020
- /27/ Validation report dated 26/03/2019

APPENDIX 2: RESOLUTION OF FINDINGS

Summary of findings	CAR	CL	FAR
	03	04	–

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

No remaining FAR from validation

FAR ID	**	Section no.	Date: DD/MM/YYYY
Description of FAR			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
VVB assessment			Date: DD/MM/YYYY

Table 2. CL from this verification

CL ID	01	Section no.	Date: 17/02/2020
Description of CL			
PP needs to submit the following documents- 1) Commissioning Certificate. 2) Calibration Records. 3) JMR & Invoices 4) Diesel consumption records 5) Plant shut down details 6) Supportive for meter replacement dates			
Project participant response			Date: 21/02/2020

The relevant supportive is provided along with this response. The diesel consumption during current monitoring period was not significant and hence not considered for calculation of project emission. The plant has operated with scheduled maintenance and operation, no shut down during current monitoring period.

Documentation provided by project participant

1. Commissioning Certificate
2. Calibration Record
3. JMRs & Invoices
4. Diesel consumption records
5. No records
6. Meter test report

VVB assessment

Date: 03/03/2020

1. The commissioning certificated has been checked and the date of commissioning of the project activity has been confirmed to be 31/03/2017.
2. The calibration records provided by the PP have been checked and Test report by Himachal Pradesh State Electricity Board confirms the latest calibration date to be 23/02/2017.
3. The JMR of 11 months and electricity invoices for the rest of the monitoring period provided by the PP has been checked and found consistent.
4. Diesel consumption records provided by the PP have been checked and found consistent.
5. No shut down details are provided as the plant was operational for the duration of the monitoring period, this was also confirmed by the verification team during the On-site visit.
6. Test report no. RTL/CAL201702019/317 dated 21/02/2017 has been checked for meter replacement date provided by the PP have been checked and found consistent.

Hence, CL 01 is closed.

CL ID	02	Section no.		Date:	17/02/2020
Description of CL					
Under section 1.1 of the submitted VCS MR, PP has mentioned that "Wheeling and Banking Agreement (PPA) is being signed with the Himachal Pradesh State Electricity Board (HPSEB), the generated electricity is being used for captive consumption at its manufacturing unit Baddi". The sentence seems inappropriate. Please clarify if the Wheeling and Banking Agreement has been signed yet or not. Provide supportive as well.					
Project participant response					Date: 21/02/2020
The "Wheeling and Banking Agreement (PPA) agreement is signed, the sentence is corrected and supportive is already provided.					

Documentation provided by project participant	
Wheeling and Banking Agreement <i>PPA</i>	
VVB assessment	Date: 03/03/2020
The signed Agreement for wheeling, Banking and Captive use of power between Manuni H.E.P and Himachal Pradesh State Electricity Board and M/s Winsome Textile Industries Ltd., Dated 30/03/2000 has been checked by the Verification team and found to be ok. Hence, CL 02 is closed.	

CL ID	03	Section no.	Date: 17/02/2020
Description of CL			
During the on-site visit, it was confirmed that the diesel has been used in the project boundary but the value of diesel in the monitoring parameter $QC_{diesel,y}$ has been reported to be zero. Please clarify.			
Project participant response			Date: 21/02/2020
The project emissions due to diesel consumption have now been calculated and accordingly the ER sheet has now been revised. The diesel consumption during current monitoring period was about 647 litres which will result around 3.0 tCO ₂ e.			
Documentation provided by project participant			
Diesel consumption record			
VVB assessment			Date: 03/03/2020
The diesel consumption records have been checked and it can be confirmed that during the current monitoring period there was about 647 litres consumption of diesel which will result in around 3.0 tCO ₂ e. Hence, CL 03 is closed.			

CL ID	04	Section no.	Date: 17/02/2020
Description of CL			
In the registered VCS-PD, for the technical specifications of the turbine, the rated power has been mentioned as 1750 kW but during the on-site visit, the output was found to be 1842.1 kW as per the rated parameters on the name plate. Please clarify.			
Project participant response			Date: 21/02/2020

The turbines used in hydro power projects as a standard practice are installed with higher capacity than intended use for testing purpose and also to accommodate any unwanted variation in inflow. The installed capacity mentioned in PDD is sourced from commissioning certificate issued by DISCOM and nodal agency approval, which has been issued by nodal agency and considered authentic.	
Documentation provided by project participant	
Commissioning certificate	
VVB assessment	Date: 03/03/2020
The commissioning certificated dated 31/03/2017 has been checked and the verification team confirms that the installed capacity mentioned in the PDD and the MR is found consistent with the commissioning certificate. Hence CL 04 is closed.	

Table 3. CAR from this verification

CAR ID	01	Section no.		Date: 17/02/2020
Description of CAR				
- Under section 1.8 of the submitted VCS MR, the title of the methodology applied is inconsistent. - Under section 1.8 of the submitted VCS MR, the reference link for "General guidelines for SSC CDM methodologies" is not functional.				
Project participant response				Date: 21/02/2020
- There was typo error the same is corrected in revised MR - The weblink is corrected in revised MR				
Documentation provided by project participant				
MR Version-02				
VVB assessment				Date: 03/03/2020
The updated section 1.8 of the revised MR version 02 has been checked by the verification team and the revisions made were found consistent. Hence, CAR 01 is closed.				

CAR ID	02	Section no.		Date: 17/02/2020
Description of CL				

Under section 5.2 and 5.3 of the submitted VCS MR, PP has mentioned “PE _y = tCO ₂ e” and “LE _y = tCO ₂ e” which is inconsistent.	
Project participant response	Date: 21/02/2020
There was typo error, the 0 value is incorporated in revised MR	
Documentation provided by project participant	
MR Version-02	
VVB assessment	Date: 03/03/2020
The updated MR version 2 has been checked and now found consistent. Hence, CAR 02 is closed.	

CAR ID	03	Section no.		Date: 17/02/2020
Description of CL				
Under section 4.3 of the submitted VCS MR, PP has mentioned that “the records in the plant log books will be consolidated in the form of monthly GHG reports by plant supervisor and will be submitted to the plant manager for review”. No such reports were found during the on-site visit.				
Project participant response				Date: 21/02/2020
The emission reduction calculation in project case is straight forward to multiply the total electricity supplied to grid by fixed ex-ante emission factor of grid. As monthly generation is being checked by Manager and he also shares the same with DISCOM on monthly basis for cross check is considered as same practice as reported in PDD.				
Documentation provided by project participant				
Email communication with DISCOM				
VVB assessment				Date: 03/03/2020
The Email communication with DISCOM was verified and found ok. Hence, CAR 03 is closed.				

Table 4. FAR from this validation

No FAR raised.

FAR ID	xx	Section No.		Date: DD/MM/YYYY
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Description of FAR	
Project participant response	Date: DD/MM/YYYY
Documentation provided by project participant	
VVB assessment	Date: DD/MM/YYYY