



VCS VERIFICATION REPORT

VISHNUPRAYAG HYDRO- ELECTRIC PROJECT (VHEP) BY JAIPRAKASH POWER VENTURES LIMITED, INDIA

MONITORING PERIOD:
1 APRIL 2012 TO 30 SEPTEMBER 2012

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Summary:

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions reported for the "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" (VCS Project ID:173) for the period 1 April 2012 to 30 September 2012 to review and determine the monitored reductions in GHG emissions that have occurred as a result of the project activity.

The verification was performed on the basis of VCSA Programme Guidelines & Standard version 3.3 for VCS projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. The verification was conducted by means of document review, follow-up interviews and site inspection, and the resolution of outstanding issues.

In our opinion, the GHG emission reductions reported for the project in the monitoring report (version 02) of 1 November 2012) are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved methodology ACM0002 (version 06) and the monitoring plan contained in the VCS PD of 25 May 2007.

Hence, DNV Climate Change Services AS (DNV) is able to certify that the emission reductions from the "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" during the period 1 April 2012 to 30 September 2012 amount to 1 106 589 tonnes CO₂ equivalent.

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Version 3**1 INTRODUCTION**

Jaiprakash Power Ventures Limited has commissioned DNV Climate Change Services AS (DNV) to carry out the verification of the emission reductions reported for the VCS project activity 173 "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" (the project) for the period 1 April 2012 to 30 September 2012. This report contains the findings from the verification and a verification statement for the verified carbon units.

1.1 Objective

Verification is the periodic independent review and ex-post determination by an accredited verification body of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined verification period.

A verification statement is the written assurance by a verification body that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and provide a verification statement for the emission reductions reported for the "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" for the period 1 April 2012 to 30 September 2012.

1.2 Scope and Criteria

The scope of the verification is:

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

The criteria of the verification are:

- VCS Program Guide version 3.3 effective 1 May 2012 /13/.
- VCS Standard version 3.2 effective 1 February 2012 and other relevant requirements defined by VCSA /13/.
- The approved methodology ACM0002 (version 06) /12/.

The verification shall ensure that reported emission reductions are complete and accurate in order to be verified.

1.3 Level of assurance

The verification report expresses a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement. DNV applied a materiality threshold of 1% with respect to omission or misstatements concerning reported quantities as per VCS standard 5.3.1 4). The emission reductions for the current six month period amount to 1 106 589 tCO₂e /1//7/

1.4 Summary Description of the Project

The purpose of the project is to harness renewable hydropower potential in Chamoli district of Uttarakhand and enable displacement of fossil fuel based electricity generation. JPVL has established this run-of-the-river hydro power project across river Alakananda, near Joshimath Chamoli district and operates the project in the region of Uttarakhand state, India. The 400 MW project comprises of four 100 MW impulse type Pelton turbines commissioned in four phases. The project activity includes development, design, engineering, procurement, finance, construction, operation and maintenance of hydro power based electricity generation and supplying it to Uttar Pradesh Power Corporation Limited (UPPCL) in Uttar Pradesh through the northern regional grid of India which has presently been integrated within the integrated North, East, West and North-East grid (NEWNE grid /14/). The location and details of the turbines with respect to the project activity have been verified to be as per details provided in the VCS PD /2/.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

The project is a registered project with VCS as confirmed from the website of VCS with a project id of 173 as confirmed from the VCS website /2/:

(<https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=173&lat=30%2E7&lon=79%2E466667&bp=1>).

3 VERIFICATION PROCESS

3.1 Method and Criteria

The verification was performed through means of the following three phases in accordance with the requirement of the registered VCS PD /2/, the applied methodology, and the VCS Standard version 3.2 and other relevant VCS requirements.

- A desk review of the monitoring report and all support documents /1/.
- Follow-up interviews with project stakeholders and site inspection /16/, /17/, /18/, /19/, /20/.
- The resolution of outstanding issues and the issuance of the verification report and statement.

The following sections outline each step in more detail.

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

- The emission reduction calculations and the relevant data records /7/.
- The calibration and maintenance records for the monitoring instruments /8/.
- The management systems to support the project operation and monitoring /8/.

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Verification team

Role	Last Name	First Name	Country	Type of involvement					
				Desk review	Site visit	Reporting	Supervision of work	Technical review	TA 1.2 competence
Team Leader, Verifier and TA competent	Astakala	Vidyacharan	Indian	✓	✓	✓	✓		✓
Verifier and TA competent	Kapoor	Nitin	India	✓	✓	✓			✓
Technical reviewer	Lehmann	Michael	India					✓	✓

Duration of verification

Receipt of initial monitoring report	9 October 2012
Preparations:	From 10 October 2012 to 29 October 2012
On-site verification:	From 30 October to 1 November 2012
Reporting, calculation checks and QA/QC:	From 1 November 2012 to 8 November 2012

3.2 Document Review

The monitoring report /1/ (version 1) dated 5 October 2012 along with version 2 dated 1 November 2012 and the monthly joint meter readings reports signed by UPPCL and JPVL /9/ were assessed as a part of the verification. In addition, the VCS project design document /2/, in particular the baseline estimations and the monitoring plan contained in the VCS PD /2/ were also assessed along with the eleventh verification report /15/. The monthly invoices raised by JPVL on UPPCL /10/ were also reviewed to cross check the generation details as a part of the documentation in line with the requirements of the methodology /12/.

3.3 Interviews

From 30 October 2012 to 1 November 2012, Nitin Kapoor and Astakala Vidyacharan of DNV carried out a site visit at Vishnuprayag Hydro Electric Project (VHEP).

See detail requirement in the below Section 3.4

3.4 Site Inspections

From 30 October 2012 to 1 November 2012, DNV carried out a site visit at Vishnuprayag Hydro Electric Project (VHEP). During the visit, DNV verified that the actual implementation of the project is

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as described in the VCS PD /2/. The commissioning certificates and the turbine details were checked and found to be correct /4/. The electricity meters and meter test certificates of the meters were checked and found to be in order /8/. The evidence of the reported net electricity generation was also verified, which in the project activity case is the monthly electricity generation joint meter reading reports signed by UPPCL and JPVL /9/. In addition, the invoices raised by JPVL on UPPCL /10/ were verified against the joint meter readings to cross-check the joint meter readings /9/. The amount of electricity imported from the grid and generated from the DG sets to account for project emissions was also verified and found to be correct. The relevant calibration records /8/ were verified and found to be in order and valid for the complete monitoring period.

3.5 Resolution of Any Material Discrepancy

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

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

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

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

There are no CARs, CLs or any FARs that were raised during the current verification. The revision in Monitoring report was only to address minor corrections by the JPVL.

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4 VERIFICATION FINDINGS
4.1 Project Implementation Status

As part of the site visit, DNV was able to confirm that the project implementation is in accordance with the project description contained in registered VCS PD /2/ of 25 May 2007, and that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS PD /2/ of 25 May 2007.

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of VCS PD):	EG_y (Electricity supplied to the Grid by the project activity during the period y) Line 1: Main Meter Sr No: APM20005 and Check Meter Sr. No APM20007 Line 2: Main Meter Sr No: APM20004 and Check Meter Sr. No APM20006
Measuring frequency:	Continuous measurement with hourly recording
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Electricity Meters
Is accuracy of the monitoring equipment equal or more accurate as stated in the VCS PD/CDM PDD? If the VCS PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	There is no mention of the accuracy class of the monitoring instrument in the registered VCS PD. The accuracy class of the electricity meters used is 0.2% which represents good monitoring practice.
Calibration frequency /interval:	The calibrations are being done quarterly
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	There is no calibration interval specified in the registered VCS-PD and the requirement of quarterly calibration specified in internal procedures represents good monitoring practice.
Company performing the calibration:	The calibrations are done internally in the presence of representatives of UPPCL (government agency to whom the power is being sold). The calibration is carried out using calibrated energy meters whose calibration is traceable to National Standards. The

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	details of the master instrument used and its traceability has been verified /8/.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period? If the calibration does not cover the whole period please indicated how the project has revised its GHG calculations for the period that calibration was not valid.	Yes, the calibrations are valid for the whole monitoring period. Internal Calibration certificates of the line 1 main meter (serial no APM 20005) and check meter (serial no APM 20007) dated 31 March 2012 and 30 June 2012. Internal Calibration certificates of the line 2 main meter (serial no APM 20004) and check meter (serial no APM 20006) dated 31 March 2012 and 30 June 2012.
If applicable, has the reported data been cross-checked with other available data?	The reported net generation has been cross checked with the invoices /10/ raised by the PP on UPPCL.
How were the values in the monitoring report verified?	The values were verified using the joint meter readings /9/ taken by the representatives of UPPCL and JPVL.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of VCS PD):	EG _{import,grid,y} (Electricity imported by project activity from grid during the period y) Meter Serial No 619137
Measuring frequency:	Continuous measurement with hourly recording
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Electricity Meters
Is accuracy of the monitoring equipment equal or more accurate as stated in the VCS PD/CDM PDD? If the VCS PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	There is no mention of the accuracy class of the monitoring instrument in the registered VCS PD. The accuracy class of the electricity meters used is 0.5% which represents good monitoring practice.
Calibration frequency /interval:	The calibrations are required to be done yearly but have in fact been done more frequently and within six months.
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	There is no calibration interval specified in the registered VCS-PD and the requirement of at least yearly calibration specified in internal procedures represents good monitoring practice.
Company performing the calibration:	The calibrations have been done internally using calibrated energy meters that are traceable to national standards. The details of the master instrument used and its traceability has been verified /8/.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period? If the calibration does not cover the whole period please indicated how the project has revised its GHG calculations for	Yes, the calibrations are valid for the whole monitoring period. Internal calibration of Grid incomer (serial no 619137) dated 17 December 2011 and 3 May 2012.

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the period that calibration was not valid.	
If applicable, has the reported data been cross-checked with other available data?	NA
How were the values in the monitoring report verified?	The values were verified using the plant records/log books /4/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of VCS PD):	EG _{import, DG,y} (Electricity supplied by the DG sets during the period y) to power plant Meter Serial No 619139
Measuring frequency:	Continuous recording with hourly recording
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Electricity Meters
Is accuracy of the monitoring equipment equal or more accurate as stated in the VCS PD? If the VCS PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	There is no mention of the accuracy class of the monitoring instrument in the registered VCS PD. The accuracy class of the electricity meters used is 0.5% which represents good monitoring practice.

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Calibration frequency /interval:	The calibrations are required to be done yearly but have in fact been done more often and within six months.
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	There is no calibration interval specified in the registered VCS-PD and the requirement for at least yearly calibration specified in internal procedures represents good monitoring practice.
Company performing the calibration:	The calibrations have been done internally using calibrated energy meters that are traceable to national standards. The details of the master instrument used and its traceability has been verified /8/.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period? If the calibration does not cover the whole period please indicated how the project has revised its GHG calculations for the period that calibration was not valid.	Yes, the calibrations are valid for the whole monitoring period. Internal calibration of DG (serial no 619139) dated 13 January 2012 and 25 May 2012.
If applicable, has the reported data been cross-checked with other available data?	NA
How were the values in the monitoring report verified?	The values were verified using the plant records/log books /4/
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The main meters and check meters are installed by JPVL and the ownership has been transferred, after commissioning, to UPPCL for future maintenance. The monthly meter readings (both main and check meters) are taken jointly by the parties on the last day of the month at noon. At the conclusion of each meter reading, an appointed representative of the UPPCL and JPVL respectively sign a document indicating the amount of kWh recorded by the meter as exported power to the grid. This is then translated to a format (Joint Energy Meter Reading) and signed by UPPCL and JPVL which clearly indicates the net electricity exported. These JMR certificates /9/ become the basis for calculations of the emission reductions.

Each meter is jointly inspected and sealed on behalf of the parties and is not interfered with by either party except in the presence of the other party or its accredited representatives. The general conditions set out for metering, recording, meter readings, meter inspections, test & checking and communication are as per the power purchase agreement (PPA) with UPPCL /5/. If the variation between the main meter and the check meter during any of the monthly meter readings is more than the permissible limit for meters of 0.2 % accuracy class, all the meters will be re-tested and calibrated. Test and joint calibration reports have been verified /8/. No variations from the permissible limits were observed during this verification period. The meters have been calibrated on 31 March 2012 and 30 June 2012 respectively. The calibration of the test meter has also been verified and is traceable to National Standards /8/.

The electricity generated from the two DG sets has been fed into the incomer where it is metered (Sl. No 619139). The meter is of 0.5 accuracy class and has been calibrated on 13 January 2012 and 25 May 2012 /8/. The calibrations are valid for 1 year while the PP has done them within six months which is a good practice.

The electricity imported from the grid has been fed into the incomer where it is metered (Sl. No 619137). The meter is of 0.5 accuracy class and has been calibrated on 17 December 2011 and 3 May 2012/8/. The calibrations are valid for 1 year while the PP has done them within six months which is good practice.

Based on the above, DNV is of the opinion that for the current verification period (from 1 April 2012 to 30 September 2012), the project developer has taken sufficient steps to ensure the accuracy of reported emission reductions.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The emission reductions ER_y by the project activity is the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y):

- 1) Baseline emissions: Baseline emissions (BE_y in tCO_2) are the product of the grid emission factor (EF_y in tCO_2/MWh) times the net electricity supplied by the project activity to the grid (EG_y in MWh) /7/. These are calculated as 1 106 661 tonnes of CO_2e .
- 2) Project emissions: The project emissions from the usage of DG sets and the electricity import from the grid are calculated as 72 tonnes of CO_2e /7/.
- 3) Leakage: No leakage has to be considered for the proposed project activity which is in line with the approved methodology /12/.

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The amount of electricity delivered to the grid has been verified to be 1475549 MWh which resulted in emission reductions of 1 106 589 tCO₂e (net of project emissions) reported for the period from 1 April 2012 to 30 September 2012. The data was verified by reviewing the electricity generation joint meter reading certificates of UPPCL and JPVL/9/which has been cross checked with the invoices raised by JPVL to UPPCL/10/. The table below summarizes the monthly PLF achieved by the project activity during the current monitoring period.

Month	Net Delivered Energy (MWh)	PLF (%)
April 2012	81 356	28.25
May 2012	181 738	61.07
June 2012	298 948	103.80
July 2012	309 883	104.13
August 2012	297 196	99.86
September 2012	306 428	106.40
Total	1 475 549	83.99

Auxiliary power has been consumed through import of power from the UPCL grid and by running of the DG sets when the plant was not in operation and for occasional start up checks of DG sets. This has been duly accounted for as project emissions. For the purpose of estimating the project emissions due to import of power, the most recently published grid emission coefficient value of 0.921 tCO₂e/MWh has been used from the CEA database/14/. This is more conservative than the *ex-ante* emission coefficient of 0.75 tCO₂e/MWh used by the project proponent for calculating the baseline emission reductions. The diesel emission coefficient of 0.8 tCO₂e/MWh as applicable and stipulated in AMS-I.F/12/for >200 kW DG sets has also been used to account for emissions from running of the DG sets. It has been confirmed during the site visit that the capacity of the two DG sets are 800 kW each (greater than 200 kW).

The energy generated and emission reductions claimed for the proposed period were as shown in the following table:

Period	Energy Generated (MWh)	Baseline (tCO ₂)	Project Emissions (tCO ₂)	VCUs (tCO ₂)
1 October 2011 to 31 March 2012 (previous period)	555 240	416 430	81	416 349
1 April 2012 to 30 September 2012 (current verification period)	1 475 549	1 106 661	72	1 106 589
As per PDD (6 months)	978 735	734 053	0	734 053

The emission reductions have been estimated in the validated PD /2/ based on the total power generation estimated for the year after subtracting the auxiliary consumption and transformation losses. This on a pro rata basis for the six month period of verification works out to be 734 053 tCO₂. The actual emission reductions are higher because:

1. The current verification period falls in the peak season which has resulted in a higher PLF and hence a higher generation than the average for the plant calculated on a pro rata basis for the six monthly verification period as cited in the table above. The monthly PLF achieved has also been mentioned above in the report.
2. On adding the generation of the immediately preceding six months /15/, the actual generation is slightly higher than what has been estimated for the complete year. The total energy generated for the complete year (including the previous six months) works out to be 2 030.789 GWh as compared to an estimate of 1 957.47 GWh, net of auxiliaries and transformation losses in the VCS-PD /2/. The net generation on an annual basis thus is 3.75% higher than the validated generation in the VCS-PD /2/. DNV has further verified the agreement of PP with the equipment supplier which guarantees an overloading generation of 10% whenever the water resources permit /3/.

The GHG calculations are complete and transparent, and their accuracy has been verified.

4.4 Management and Operational System

Monitoring and reporting of electricity generation is part of normal operations of JPVL. The quality of meter readings is assured through calibration of electricity meters /8/ and through cross checking of the joint meter readings /9/ with the invoices raised /10/. DNV confirms that the management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan of the registered VCS PD /2/.

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5 VERIFICATION CONCLUSION

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions that have been reported for the "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" (VCS Registration No. 173) for the period from 1 April 2012 to 30 September 2012.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project.

It is DNV's responsibility to express an independent verification statement on the reported GHG emission reductions from the project.

DNV conducted the verification on the basis of the approved methodology ACM0002 (version 06), the monitoring plan contained in the registered VCS PD of 25 May 2007 and the monitoring report (version 2) dated 1 November 2012. The verification included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

DNV's verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. DNV planned and performed the verification by obtaining evidence and other information and explanations that DNV considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions of the "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" (VCS Project IDNo. 173) for the period 1 April 2012 to 30 September 2012 are fairly stated in the monitoring report (version 2) dated 1 November 2012.

The GHG emission reductions were calculated correctly on the basis of the approved methodology ACM0002 (version 06) and the monitoring plan contained in the registered VCS PD of 25 May 2007.

DNV Climate Change Services AS is able to certify that the emission reductions from the "Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Limited, India" during the period 1 April 2012 to 30 September 2012 amount to 1 106 589 tonnes of CO₂ equivalent, detailed as below.

Reporting period: 1 April 2012 to 30 September 2012

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

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	1 106 661
Project Emissions	72
Leakage	0
Net GHG emission reductions or removals	1 106 589

DNV does not assume any responsibility towards the issuance and utilization of the VCU's hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to DNV and the engagement conditions detailed in this report. DNV cannot be held liable by any party for decisions made or not made based on this report.

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6 REFERENCES

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

/1/ JPVL: Monitoring report of "Vishnuprayag hydro-electric project by Jaiprakash Power Ventures Limited (JPVL)" version 1 dated 5 October 2012, version 2 dated 1 November 2012, for the period from 1 April 2012 to 30 September 2012.

/2/ JVPL: Project design document – "Vishnuprayag Hydro-electric Project by Jaiprakash Power Ventures Limited (JPVL)", dated 25 May 2007; Project Id 173 as available on the website <https://vcsprojectdatabase1.apx.com/myModule/Interactive.asp?Tab=Projects&a=1&t=1>

/3/ JVPL: Agreement dated 15 December 2011 between JPVL (PP) and the equipment supplier confirming that the turbines are capable of running at a continuous overload of 10%.

/4/ JPVL: Commissioning certificates confirming the dates of commissioning of the 4 units as 13 October 2006, 31 August 2006, 14 July 2006 and 3 June 2006.

JPVL: Plant log books for confirming the import of electricity for power plant and DG set generation for the period 1 April 2012 to 30 September 2012

/5/ JPVL: Amended Power Purchase Agreement (PPA) signed with UPPCL on September 2002 and approved by UPERC on 14 June 2003.

JPVL and UPPCL: Final PPA incorporating further orders of UPERC dated 16 January 2007.

/6/ Uttaranchal Pollution Control Board – 'No objection certificate' dated 6 March 2003.

Valid consent to operate-Air and Water (Reference No UEPCB/HO/Consent/J-26/2012/276) dated 5 May 2012 for the period from 1 April 2012 to 31 March 2013.

Stack emission test reports by Eko Pro Engineers Private Limited dated 21 May 2011 and 26 May 2012 confirming particulate matter and other values within permissible limits.

Pollution Control Research Institute: Ambient Air monitoring records dated 14 November 2011 and 30 October 2012 by Pollution Control Research Institute confirming all values like suspended particulate matter, sulphur dioxide and nitrogen oxides are all within permissible limits.

/7/ JPVL: Excel spreadsheet documenting the ER calculations for the period from 1 April 2012 to 30 September 2012.

/8/ JPVL: Internal Calibration certificates of the line 1 main meter (serial no APM 20005) and check meter (serial no APM 20007) dated 30 September 2011 and 31 December 2011 for both meters. The accuracy of the meters is 0.2%. The calibration are done jointly with UPPCL

JPVL: Internal Calibration certificates of the line 2 main meter (serial no APM 20004) and check meter (serial no APM 20006) dated 30 September 2011 and 31 December 2011 for both meters. The accuracy of the meters is 0.2%. The calibrations are done jointly with UPPCL.

JPVL: Internal calibration record of DG Incomer (serial no 619139) dated 24 August 2011 and 13 January 2012 were verified.

JPVL: Internal calibration of Grid incomer (serial no 619137) dated 20 August 2011 and 17 December 2011.

ERTL: The master meter (serial. no 29993) has been calibrated by ERTL (North)-Reference

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Certificate No. ERTL (N)/90(4)-2K11/A1678 dated 16 September 2011 valid until 16 September 2012 and Certificate No. ERTL (N)/90(4)-2012-13/A1212 dated 7 September 2012 valid until 7 September 2013. This is a NABL accredited laboratory equivalent to IS 17025:2005 standard.

- /9/ JPVL and UPPCL: Monthly joint meter readings for the period from 1 April 2012 to 30 September 2012 for the net generation of electricity and export to the grid.
- /10/ JPVL: Monthly invoices raised by JPVL on UPPCL for the period 1 April 2012 to 30 September 2012 for the export of power to the grid.

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

- /11/ CDM Executive Board: Validation and Verification Manual, version 1.2
- /12/ CDM Executive Board: ACM0002 – Consolidated baseline and monitoring methodology for grid-connected electricity generation from renewable sources, version 6.

CDM Executive Board: AMS-I.F- “Renewable electricity generation for captive use and mini-grid”, version 2.
- /13/ VCS Program Guide version 3.3 and VCS Standard version 3.2 as confirmed from the website <http://www.v-c-s.org>
- /14/ Central Electricity Authority: CO₂ database, version 7, dated January 2012 for confirming the emission factor of grid electricity used for power import.

http://cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
- /15/ DNV's verification report 2011-0724, rev 1, dated 24 October 2011 for the period 1 April 2011 to 30 September 2011 as per VCS 2007.1.

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

- /16/ Mr. Suren Jain, JPVL, stationed at New Delhi
- /17/ Mr. Sanjeev K Goel, JPVL stationed at New Delhi
- /18/ Mr. S. Chaudhuri, JPVL stationed at VHEP, Chamoli, Uttarakhand, India
- /19/ Mr. S M Dhir, JPVL, stationed at VHEP, Chamoli, Uttarakhand, India
- /20/ Mr. Debajit Bag, Emergent Ventures India (P) Limited, Gurgaon, Haryana, India

APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CAR 1	NA		

Clarification requests

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 1	NA		

Forward action requests from previous verification

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
FAR 1	NA		

Forward action requests from this verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
FAR 1	NA		