



Voluntary Carbon Standard 2007 Validation Report Template

19 November 2007

Validation Report:

Name of Verification company:	Date of the issue:
Bureau Veritas Holdings SAS	26.12.2008
Report Title:	Approved by:
Validation Report of '300 MW Hydro Power Project of JHPL'.	Dinesh Shetty
Client:	Project Title:
JaiPrakash Hydro Power Limited (JHPL)	300 MW Hydro Power Project of JHPL.
Summary:	
<i>Bureau Veritas Certification has performed the validation of '300 MW Hydro Power Project of JHPL', located in the state of Himachal Pradesh in India.</i> <i>The validation scope is defined as an independent and objective review of the VCS PD, the project's baseline study, monitoring plan and other relevant documents, 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 validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.</i> <i>The project correctly applies the baseline and monitoring methodology as defined in ACM 0002, Version 8 of CDM and meets the relevant VCS 2007 requirements.</i> <i>The Other CDM Tool used in the validation process is "Tool to calculate the emission factor for an Electricity system", Version 01.1.</i> <i>As per the information provided by the Project Participant and the site visit conducted, no restrictions or uncertainties related to the validation were encountered.</i>	
Work carried out by:	Number of pages:
Mr H B Muralidhar – Team Leader Mr R S Premkumar – Team Member	17

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Abbreviations

VER	Voluntary Emission Reductions
BMS	Bureau Veritas Certification's Management System
CAR	Corrective Action 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
NGO	Non Governmental Organisation
PD	Project Document
UNFCCC	United Nations Framework Convention for Climate Change
MU	Million Units
MW	Megawatt
HPSEB	Himachal Pradesh State Electricity Board.
PPA	Power Purchase agreement
JMR	Joint Meter Reading

1 Introduction

This report summarizes the findings of the validation of the project, performed on the basis of VCS 2007 criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant VCS and host country criteria which are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation 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 Voluntary emission reductions (VER).

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, VCS rules and associated interpretations. The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 VCS project Description

The "300 MW Hydro Power Project of JHPL " (also called as Baspa project and referred to, herein after in this report) is a run-of-the-river hydro-electric power plant with an installed capacity of 300 MW. The capacity of the project activity has been verified by the documents provided by the Project Participant as detailed in the Section 5 of this report (The diversion barrage of the project is located across river Baspa, at Kuppa in Himachal Pradesh. The powerhouse is located at Karcham village in Kinnaur District. The project activity is an initiative of Jaiprakash Hydro Power Limited (JHPL) a part of the Jaypee Group. Jaypee is a well-known business group of India and had entered into agreement with State Government of Himachal Pradesh to implement the project. The purpose of the project activity is to generate electricity using renewable hydro energy and sell it to Himachal Pradesh State Electricity Board (HPSEB).

The unique identification of the project activity is the latitude / longitude of the power house of the Project Activity which are as follows, Longitude 78°17' E and latitude 31°50' N.

Key Features of the project activity:

- Run-of-the river power project with no water storage with a capacity of 4 hours peaking during a period of 24 hours (design for diurnal storage) when the discharge in the river comes down to 9 cusecs during the winter season.
- Largest hydro project implemented by private sector in India.
- Its barrage is at an elevation of 2600 metres, the highest altitude for any such structure to come up in India.

1.4 Level of assurance

Based on the process and procedures conducted, it can be concluded that the GHG assertion

- is materially correct and is a fair representation of GHG data and information, and
- has been prepared in accordance with the VCS 2007 standard.

The level of assurance can be categorized as 'limited' by the validation team, since some of the data used (E.g Emission Factors) in the validation process are from the publicly available databases such as the Central Electricity Authority (CEA) database, Version 4, for emission factor, for which detailed testing of the GHG assertions is beyond the domain of the project proponent, stake holders and the validation team.

2 Methodology

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a Validation protocol was customized for the project. The protocol provided the validation team, in a transparent manner, the criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements of a VCS project is expected to meet
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

VCS methodologies describe either:

- The methodology to determine a projects baseline scenario emissions levels and the process to monitor emissions reductions;
- A performance standard methodology to demonstrate that a project is additional (beyond normal business activities).

The validation protocol is used as a tool during validation. The salient points from the protocol are included in the validation report and the protocol itself is not included in this validation report.

2.1 Review of Document

The VCS Project Document (VCS PD) submitted by JHPL and additional background documents related to the project design and baseline, i.e. Approved methodology, VCS 2007 standard requirements, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed. The methodology used for the project activity is ACM 0002, Version 8 and the "Tool to calculate the emission factor for an electricity system", Version 01.1.

To address Bureau Veritas Certification corrective action and clarification requests JHPL revised the PD on 25/12/2008 and resubmitted it to the DOE. The validation findings presented in this report relate to the project as described in the VCS PD dated 25/12/2008. This latest version of the PD is as per the VCS PD template version 19/11/2007.

2.2 Follow-up Interviews

On 15/10/2008, 16/10/2008 and 17/10/2008, Bureau Veritas Certification performed the site visit and interviews with project participant and project local stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of JHPL and Emergent Ventures India (Consultants to the project for VCS registration and issuance) were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
JaiPrakash Hydro Power Limited (JHPL)	Project conceptualisation, Additionality, Operation and Management Structure.
Local Stakeholder	Perception about the project, Consultation process by project proponents.
Emergent Ventures India (VCS Consultant)	VCS PD Document, GHG Calculations, Application of Baseline and Monitoring methodology.
JHPL Operations Team	Operation and Management of the hydro project, power generation records, Reporting procedures, Data and Records Management.

2.3 Resolution of any material discrepancy

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification's positive conclusion on the project design.

During the Validation there were no material discrepancies.

3 Validation Findings

3.1 Project Design

The Baspa project is a run-of-the-river hydroelectric power plant with an installed capacity of 300 MW. It was observed that equipment and infrastructure is state of the art. The monitoring system is SCADA and PLC based. The project would generate power by utilizing the water diverted from the flow of the river Baspa. The diversion barrage of the project is located across river. Two open sedimentation chambers are used after the diversion barrage to exclude the silt from water used for power generation. The water is passed through a head race tunnel of about 7.95 km long, which is branching into three penstocks for running 3 Pelton turbines of 100 MW each. A surge shaft has been constructed between the head race tunnel and the pressure shaft which would be used to regulate the flow.

The power generated is stepped up to 400 KV and is evacuated by two circuits of 400 KV lines for the power station to Jhakri substation, which is about 55 Km from the site. The transmission line from the power station to Jhakri consisting of 121 towers has been installed as a part of the project. From Jhakri, 400 KV transmission system is utilized to evacuate the full output of JHPL (300 MW) hydro electric project.

The operational lifetime of the Project Activity is for 40 years and the crediting period for the project activity is 10 years without renewals. The project start date is 08th June 2003, which is the start date of commercial operations of the plant.

The proof of title for ownership of the project was established by validating the documents as indicated in section 5 – References of this report. Documents include – Clearances by The Government Departments like Ministry of Environment and Forests, State Electricity Board Power Purchase Agreement, Commissioning certificates issued by the Electricity Board, purchase documents and loan documents, etc.

This project activity is unlikely to be eligible under the CDM scheme, since even though the commercial operations started in 2003, associated activities like obtaining approvals / clearances from Government and statutory agencies started way back in year 1993. Based on the evidences provided by the PP, it is unlikely that the project has participated under any other emission trading schemes

The project is eligible under the VCS since the UNFCCC CDM is approved under the VCS program. As per the CDM criteria, the project scale equates to a large-scale project activity under Sector Scope I, (Type - Energy Industries-Renewable/Non-Renewable) of the category. The project start date is in 2003 and the project proponent had signed a contract with the verifier on 17/06/2008, i.e. before 19/11/2008.

Bureau Veritas Certification recognizes that Installation of hydro power project by Jaiprakash Hydro Power Ltd (JHPL) is helping the country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country sustainable development requirements because it -

- Contributes to the objective of Government of India to achieving 10% incremental increase in the generation from renewable energy sources.
- Contributes to meeting the electricity supply deficit in the northern grid of India.
- Eliminates the use of fossil fuels for generation of power.
- CO₂ abatement and reduction of green house gas emissions through adopting of renewable energy technology.
- Direct and indirect employment to local public due to the project implementation.

The project design is sound and the geographical (Kinnaur District, Madhya Pradesh, India) boundaries of the project are clearly defined. The project boundary is composed of the Barrage at Kuppa, Powerhouse at Karcham, metering equipments, substation at Jhakri and the connected northern grid which in turn is synchronised with other grids viz. Western, Eastern and North-Eastern grids. The operational lifetime of 40 years is considered based on the guarantee by the equipment suppliers.

The hydropower project has been installed with the aim of harnessing the under-developed hydro potential of the state. The electricity generated from the project activity meets the power demand of the State (HP). Hence, it contributes greatly toward filling the gap of demand and supply in the Northern region.

Thus, it is evident that project proponent has initiated this project with an aim to supply electricity to the grid.

3.2 Baseline

Correct application and justification of selected baseline methodology-

The “300 MW Hydro Power Project by JHPL” project uses the approved baseline and monitoring methodologies as per ACM 0002, version 8, for the project activity which is deemed to be the one most applicable for this project. The other tool used for the project activity is “Tool to calculate the emission factor for an electricity system”, version 01.1. The VCS PD responds adequately to each of the applicability criteria, which are outlined in the baseline methodology.

The application of the baseline methodology is transparent. The calculation of emission reductions is based on the net electricity supplied to the Northern regional grid, as the most likely baseline scenario in the absence of the project activity is likely to have been electricity from the grid. The baseline emission factor is calculated as combined margin based on equal weights of simple operating and build margin. Latest CEA data, Version 4 dated October 2008, published by the Central Electricity Authority (CEA) for Indian Northern regional grid system has been adopted in the VCS PD. Based on the above calculations, the emission factor has been determined to be 0.805 and the same has been fixed ex-ante.

Assessment and demonstration of additionality

The additionality of the project activity has been established using the Project Test 1 of the VCS 2007 standard and the following barriers have been discussed to demonstrate additionality viz;

Step 1 – Regulatory Surplus - The project activity is not mandated by any state or national laws. The project proponent was not bound by any legislative mandate to implement the project activity

Step 2 – Implementation barriers

A brief background on the implementation of hydropower projects in the country has been provided, prior to the explanation on the additionality of the project

It is an established fact that infrastructure project especially hydro electric power projects yield low returns and have long payback periods. Therefore, until the late nineties such power plants were not undertaken by the private sector. Private promoters have faced difficulties when trying to obtain funding, as bankers are unlikely to agree to loans with maturity longer than three years, to match the tenor of their deposit liabilities. Moreover, the State Electricity Boards (Himachal Pradesh State Electricity Board in this case) has been the sole purchaser of the power that the private generator generates. Most of the State Electricity Board's (SEB's) are in poor financial health. The SEBs are also unlikely to get backing from financial agencies for the commitment to purchase electricity from the private producers.

It is also an established fact that financial institutions were wary of lending money to companies due to long gestation periods, substantial capital outlay, geological barriers, and the unpredictable time of the positive returns from projects.

Besides, to encourage private sector participation in the power sector in the early 1990's ideally 80% of the project cost must have formed the debt component of the project and 20%, the equity.

Large-scale slippage of hydropower generation in the country has occurred due to non-availability of financing. This has been highlighted as the major reason for falling short of the target of hydroelectric projects during the implementation of the Eleventh Five Year National Plan.

The maximum number of slippages in the capacity up to 1400 MW has resulted due to financial problems. Thus, it can be concluded that financial assistance plays a crucial role in the smooth implementation of hydro projects.

The validation team has conducted an assessment on the different types of risks claimed by the Project Proponent (JHPL) during the construction and commissioning phase of the project as well as the perceived risks during the operation of the project during the next forty years which is the deemed life cycle of the project.

The project activity is the largest hydropower project under Independent Power Producers (IPPs) in India. JHPL has taken the initiative and the risk in the early nineties when the power sector regime was dominated by power plants owned by the State and the Central Governments. Originally Himachal Pradesh State Electricity Board (HPSEB) had proposed to set up the project and had obtained techno economic clearance for the project from Central Electric Authority (CEA) in 1989.

In the case of this project, although the initial MOU (memorandum of understanding) was signed by the PP with the Government of Himachal Pradesh in 1991, the project actually was commissioned after a gap of twelve years in 2003.

A profile of the events in a chronological order, which forms part of the factual history leading to the commissioning of the project, is given below:

- November 1991: The MOU was signed by JIL with the Government of Himachal Pradesh (GOHP) for the implementation of the project. JHPL was formerly known as Jayaprakash Industries Limited (JIL).
- May 1992: The project report based on the techno economic feasibility study was submitted to GOHP.
- December 1993: The approval of the Ministry of Environment and Forests was obtained.
- April 1994: The techno economic clearance for the project was obtained
- October 1995: A tripartite agreement between GOHP, JIL and JHPL, consenting the transfer of all assets, liabilities, obligations, privileges and benefits from JIL to JHPL.
- June 1997: The Power Purchase Agreement (PPA) was signed.
- January 1998: However, due to the specific conditions set by the lending institutions the PPA was again amended. The amended PPA that was issued set several conditions, including the provision of escrow mechanism/letter of credit for payment from HPSEB in accordance with the conditions set by the banks.
- The construction work has started around the same time.

- January 1999: JHPL submitted a Firm Financial Package of Indian Rupees INR 13650 Million /350 Million USD.
- July 2000: Flash floods in the river Sutlej caused immense damage to the project site disrupting communication and transportation links. This delayed the project implementation by more than fifteen months. This led to severe cost escalation.
- May 2001: JHPL had to resubmit the financial package of INR 16200 million /385 Million USD to GOHP and the banks.
- December 2002: GOHP/HPSEB granted approval of the capital cost of the project INR 15500 million /INR 350 Million USD.
- June 2003: The Project started commercial operations

Financial and institutional barriers

Based on the evidences provided and interaction with the technical and financial teams of JHPL, the validation has arrived at the following inferences

- That JHPL has faced considerable difficulties in arranging finance for the project. The project activity was conceptualised in the early 1990's, at a time when setting up large hydropower projects was not common in India and funding for such projects was almost non-existent.
- That fifteen leading institutions of the country have funded the project, which is again not a normal scenario. Each bank has provided loans at different interest rates ranging from 13.75% (State Bank of Travancore to 18% (Industrial Development Bank of India - IDBI).
- That the project has undergone reappraisals twice by the financial institutions. It was only on the basis of the lead taken by IFCI (a reappraisal was conducted in 1998) that other banks have also come forward to grant loan to the project.
- That for Baspa hydro power project 30% of the total capital has formed the equity and 70% was contributed by the lenders, while the Government Guidelines suggested a 80:20 debt: equity ratio.
- That JHPL had to get the PPA amended to suit the requirements of the financial lending institutions.
- While the lending institutions have set several pre-disbursement, the most significant condition is the requirement of payment through escrow mechanism which was fairly unknown to most organizations during the time of implementation of the project and the imposition of this condition on the project promoters. The main factor for such a requirement in the 1990s can be attributed to the poor investment into the power sector coupled with the poor financial health of the State Electricity Boards and the non-availability of payment security mechanism. Since most of the States had problems with regard to escrowable capacity, many private power projects were unable to achieve financial closure.
- All the financial institutions have limited their loans to JHPL at the HPSEBs 'escrowable' capacity. The escrow account had to be established before financial closure. The PPA was amended in 1998 to provide for an Escrow account covering an amount of 125% of annual billing of JHPL for a 90% dependable year. A condition is being stipulated that JHPL shall enter into Escrow Agreement with HPSEB and the Escrow Agent (Bank) to the satisfaction of the institutions.
- That a Power Purchase Agreement based on a fixed rate contract tariff of Rs 2.50 for a period of 40 years between JHPL and HPSEB. This was a major challenge for both HPSEB and JHPL. HPSEB had never entered

into such an agreement earlier with any company, and this required addressing and understanding the issues for the project's life span of 40 years.

- That the capital cost investment for Baspa hydro power project activity clearly shows that cost of installation of hydro power projects is almost twice when compared to conventional sources of power generation and much higher compared to a normal that have been in areas that have lesser hydrological and geological related risks (1.38 USD/MW compared to 1.25 USD/MW).
- That the Financing of the Interconnection Facility has been taken up by JHPL, which is located at a distance of about 55 kms at a cost of Rs 62.87 crores, which was decision taken at a very late stage during the implementation of the project.

Further, based on the evidences provided as well as our own independent verification on the geological behaviour of the region, the following are the conclusions:

Geological and Hydrological Barriers

- The project activity is located in a geologically sensitive region. The project in a Seismic Zone IV, which is classified as High Damage Risk Zone and has been often exposed to landslides, flash floods, cloudbursts and avalanches.
- The PP has demonstrated the impact of such throughout the construction (in 2000, when the construction activity was stopped was almost eighteen months) as well as during the operation of the power plants (as it happened in 2005, when the flash flood in the Satluj river affected the operation for almost five months). The flash floods have a severe impact on the cost of the project and the project financials had to be reworked to include the escalation of cost.
- The excessive collection of silt and its impact on the wear and tear of the impellers of the turbine can also be considered as a peripheral barrier. Special arrangements have been made for isolation, separation and collection of the silt. The records related to the maintenance of the turbine impellers are a clear indication of the impact of silt on the operation of the turbines.

Evacuation facility

- The project activity is in a hilly area and is surrounded by dense forest, which had no power evacuation facility in the nearby area. The project proponent had developed a power transmission network of 55 km to evacuate power generated in the power plant. The transmission line that consists of 121 towers passes through an elevation of 2600 meters in one of the most difficult terrain. This has enhanced the project cost and its periodical maintenance required also has a bearing on the running cost.

Lack of Infrastructure

- Additional investment in improvement in the inadequate infrastructure to ensure continued operation of the plant, involving modification in the approach roads, storage area for resources, vehicles, office and residential colonies for labors and plant personnel and regular maintenance since the project is located in rough areas which face severe climatic conditions. Eight bridges and 121 towers have been built apart from proper infrastructure and logistics for the movement of machinery, heavy equipments, raw materials, personnel and labour. In addition, all the

electromagnetic and hydraulic equipment for the project was developed by the in-house expertise of JHPL unlike most proponents who import such machinery

Common Practice:

The validation team has analyzed two main issues to establish that JHPL is not a common practice, viz.

- Penetration of hydro electric power generation in the region/state
- Uniqueness of the JHPL project

Himachal Pradesh alone had a potential of 11647 MW of which only 2545 MW (21% only) had been tapped till 2004. Against this, the private sector operated hydro projects in operation across India was 906 MW, which gives an insight of the contribution of private sector hydro power in the total hydro power generation at 3.07%, which is almost negligible. Therefore it can be concluded that hydropower generation is not a business as usual scenario in the non-government domain of the region.

The following are the unique features of this project:

- First large-scale hydro project in the private sector.
- Construction of a barrage at 2600 metres altitude
- Construction of a 55km long transmission line from the powerhouse at Kuppa to the substation at Jhakri. Prior to implementation of the Baspa project no other project promoter had built such a long transmission line of 440 kV in the region. Until the Electricity Act, 2003 the private sector had no access to laying down the transmission line network and this was only under the purview of the Government of Himachal Pradesh. However, since the project was close to completion and power generated would need to be evacuated, the promoters built the transmission line. This was executed in one of the most difficult terrain for a hydropower project.

The fact that it is the first successful private sector project in India and is a pacesetter that has set ground for new hydropower projects to come up in the region is another endorsement that such a project activity has not been a common practice in the region.

3.3 Monitoring Plan

The conclusions regarding: Approval of the monitoring methodology- The monitoring methodology applied to the project activity is:

Title: “Consolidated monitoring methodology for grid-connected electricity generation from renewable sources”

Reference: Approved consolidated monitoring methodology ACM0002/Version 08, Sectoral Scope: 1, Date: 14th December 2007

The project applies the approved monitoring methodology AMC0002, Version 08 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”. The organisational structure and responsibilities are clearly defined. Procedures for calibration, records of calibration, and maintenance of monitoring equipment are clearly stated. The authority and

responsibilities for measuring, recording, reporting, monitoring, and controlling of the monitored parameters and review of performance are also delineated. Monthly aggregate energy supplied to the grid is monitored also by the grid authorities and can be cross verified with the billing. The suppliers of the equipment who are also contracted for Operation & Maintenance of the equipment have provide training to the site and operation personnel. Adequate procedures for carrying out internal audits have been established. All monitoring factors as per the monitoring methodology have been adequately addressed in the monitoring plan. Monitoring and measuring equipment have also been installed for measurement of project emissions.

The main sources of project emissions are internal consumption of energy :

- By the township which also houses the administrative offices and residential facilities. The energy consumption is monitored by calibrated tri-vector meters, which are calibrated and under the custody of the State Electricity Boards.
- Operation of Diesel Generator Sets at the powerhouse during start-ups, power shut downs and other emergencies. A reliable procedure has been established to measure the consumption of diesel.
- Gas-insulated lines (GIL) for power transmission have been installed since the voltages in excess of 400 kV. The GIL technology has many advantages compared to overhead lines (OHL) such as their insensitivity to pollution and adverse weather conditions, the reduced transmission joules losses (2 to 3 times less than with OHL) and the effective electromagnetic shielding. However since SF₆ is used as the insulating media and there could be possibility of topping up due to leakage and maintenance, JHPL has initiated a procedure to measure the quantity of 'topped –up' gas. Gas is stored in special bullets .A spring balance measures the difference in weight before and after the 'topping up'. Calibration of the spring balance is conducted internally. However in the absence of any master reference equipment, this procedure is not reliable. Project participant has therefore provided for using a reliable electronic weigh balance for this purpose in future. As a regular check on these emissions, project proponent regularly monitors the pressure of the SF₆ gas in the insulation system. If the pressure falls below the pre-defined levels, it is considered that the gas has leaked and is then topped up to reach the desired pressure level.

Thus, the monitoring methodology will give adequate opportunity for real measurements of achieved emission reductions.

Overall responsibility of compliance with the Project activity-monitoring plan lies with the Senior Management of JHPL/Technical Head. Responsibility for completeness of data, reliability of data (calibration of meters), and monthly report generation lies with the Site Supervisor. Responsibility of daily report generation lies with the Shift In-charge.

A project team is formed at site, which is responsible for data collection and archiving. The project team also reviews the data collected, emissions reduced etc. The monitoring reports are verified by the senior managers and in case of any irregularity observed by any of the team member, are informed to the Joint President, at site, for necessary actions. On monthly basis, these reports are forwarded at the management level to Head Office.

3.4 Calculation of GHG Emissions:

The project will partly displace fossil fuel-based electricity generation. There are project emissions due to the operation of Diesel generator sets (DG sets), electricity import through a 22kV line for internal consumption and the release SF₆ from insulating mechanism for the transmission lines., Hence the emission reductions are calculated as baseline emissions minus the project emissions due to the project activity and have been estimated to be 1052463 tCO₂/year, based on an ex-ante fixed baseline emission factor. JHPL has used the OM and BM data published in the CEA* Version 4 database, for calculating the baseline emission factor.

3.5 Environmental Impact

The project activity has obtained an Environmental Clearance from the Ministry of Environment and Forests and also from the Forest Department in 1993. The Environmental Impact Assessment Studies by an Government agency National Environmental Engineering Research Institute (NEERI) in 1999. An independent Non Governmental Organization (NGO) named Sharwan Seva Samiti in the year 2007 has conducted the stakeholders consultation process which also includes a detailed study on the impact on the ecology due to the project. The latter has been conducted at the behest of JHPL. This study was done in addition to the EIA conducted by NEERI, which was not a mandatory requirement by Ministry of Environment and Forests (MoEF) at the time of project implementation but was conducted at the insistence of the management of JHPL.

The implementation of the findings and conclusions of the reports were evidenced to be satisfactory.

The state pollution board has also accorded clearances [consent] for the project activity.

Being a run of a river project there is no evidence to suggest that the implementation has caused any adverse impact on the ecology or environment in the region.

JHPL has implemented all the Environmental Implementation Plan as suggested in the EIA conducted by NEERI.

The afforestation of the degraded forestland in the vicinity of the catchment area as suggested in the EIA has been assigned to the State Forest Department as seen from the available records. While JHPL has met its commitment (a payment of Rs 200 million has already been made to the state Government), the state government has so far implemented the scheme in about 30% of the 88.35 hectares of land that needs to be afforested.

3.6 Comments by stakeholders

The local stakeholders (identified in Section 6 of this Report) support the project and have acknowledged the benefits accrued because of the project, in terms of employment, improvement in infrastructure such as educational and transportation and overall improvement in the district.

JHPL has instituted several social development programmes such as starting of educational institutions; medical care centres and improvement of roads.

In addition to the above, the local stakeholders also had concerns with the afforestation activity undertaken by the Project Participant. The same was discussed with the Project Participant and the clarification provided by the PP

was that the afforestation of the degraded forest land in the vicinity of the catchment area as suggested in the EIA has been assigned to the State Forest Department as seen from the available records. While JHPL has met its commitment (a payment of Rs 200 million has already been made to the state Government), the state government has so far implemented the scheme in about 30% of the 88.35 hectares of land that needs to be afforested. The management of JHPL is pursuing this matter with the State Government consistently.

4 Validation conclusions

Bureau Veritas Certification has performed a validation of the 300 MW Hydro Power Project of JHPL.

The validation was performed on the basis of VCS criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases:

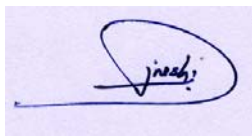
- i) a desk review of the project design and the baseline and monitoring plan; (October 2008)
- ii) Follow-up interviews and on site visit; (October 2008)
- iii) The resolution of outstanding issues and the issuance of the final validation report and opinion (December 2008).

Project participant/s used the Test 1 option for demonstration of the additionality. In line with this Test 1, the PD provides analysis of barriers to determine that the project activity itself is not the baseline scenario.

By generating electricity using renewable energy, the project is likely to result in reductions of GHG emissions partially displacing the electricity that would have been generated using fossil fuels. An analysis of the barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions. The review of the project design documentation and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. The Project design document was subsequently revised on 25/12/2008 to resolve the issues that rose during the interviews and subsequent interactions.

In our opinion, the project correctly applies and meets the relevant VCS requirements and the relevant host country criteria. In our opinion, the project correctly applies and meets the relevant VCS 2007 requirements.

The validation is based on the information made available to us and the engagement conditions detailed in this report.



(Dinesh Shetty)
Local Product Manager

5 REFERENCES

Documents provided by Type the name of the company that relate directly to the GHG components of the project.

1. MOU signed by JIL with GOHP for the implementation of the project dated November 23, 1991.
2. Project Report of the Baspa Project – May 1992 Chapter 5 on Geological Risks
3. Environmental Clearance by MOEF GOI- No J -12011/j/87-IA-I dated 17th December 1993
4. Transfer of Environmental Clearance from JIL to JHPL - No J -13011/j/87-IA-I dated 16.10.96
5. Letter from LIC of India No INV:PS:D dated 16.6.1995 on providing assistance to JHPL with conditions.
6. Environmental Assessment Report conducted by NEERI in November 2002.
7. Stakeholders Consultation and Impact Assessment Report conducted by Sharanam Sewa Samiti during 2007.
8. Extraordinary Gazzette Notification published by Government of India, dated 22nd October 1991 – Item No 2 Modification in the financial environment for private sector units.
9. Proof of Compliance with Environmental Compliance –conducted by Delta Environmental Services, Gurgoan in 2005
10. Power Purchase Agreement (PPA) signed with HPSEB : June 4th 1997 and execution of Supplement Agreement to the PPA between JHPL and HPSEB and CEA on February 28th 2003.
11. Reappraisal Report of the JHPL by IFCI in 1998.
12. Purchase Orders and Bill of Materials In 1998.
13. CEA report “Expert Committee Report on Fuel for Power generation”.
14. http://cwc.nic.in/Water_Data_Pocket_Book_2006/T8.3final.pdf
15. http://www.cea.nic.in/planning/c%20and%20e/user_guide_ver3.pdf
16. Several papers published by Ministry of Power Government of India on the financing of hydropower plants
17. Public Notice by JHPL –Disclosure pursuant TO petition Filed before the HPERC for determination of Generation Tariff for sale from Baspa Stage – II 300 MW Hydro power plant.

6 Persons Interviewed:

Project participant –

Mr R K Narang	– Director
Mr Kanti Prasad	– Jt President–Technical
Mr A B Chugh	– Joint President–Finance
Mr A K Raina	– Project Manager Electrical
Mr VC Gupta	– General Manager
Mr V Sethi	– Project Advisor
Brigadier Tomar	– Head Administration and Facilities

State Electricity Board

Mr Rohan Kumar	– Incharge – Nathpa Substation
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Local Stake Holders –

Mr Pitambar Das Negi

– Head, Gram Panchayat, Kamru Village

Mr Bishan Singh Negi

– Head, Gram Panchayat, Sangla Village

Project Consultants –

Ms Subuddhi Banthia

– Emergent Ventures India