



Voluntary Carbon Standard 2007.1
Validation Report Template

19 November 2007

Validation Report:

Name of Verification company:	Date of the issue:
SIRIM QAS INTERNATIONAL SDN BHD	7 th August 2010
Report Title:	Approved by:
VCS Validation Report of "Hydro Power Project in backward district of Andhra Pradesh, India"	Mr. Parama Iswara Subramaniam
Client:	Project Title:
Andhra Pradesh Power Generation Corporation Limited (APGENCO)	Hydro Power Project in backward district of Andhra Pradesh, India

Summary:

Andhra Pradesh Power Generation Corporation Limited (APGENCO) has engaged SIRIM QAS International Sdn Bhd to undertake the validation of the project titled “Hydro Power Project in backward district of Andhra Pradesh, India” (hereinafter the project) under the Voluntary Carbon Standard (VCS) 2007.1. The purpose of the validation is to perform an independent, third party assessment of whether the project activity confirms to the qualification criteria set in the VCS 2007.1 standard and related requirements to attain real, measurable, additional, and permanent emission reduction. The validation exercise was not meant to provide any consulting to the project participants. However, the stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The validation consisted of three phases;

- i) a document review of the project documents and preparation of validation protocol,
- ii) on-site visit to the project activity and interviews with the project developer and the project consultant, and,
- iii) resolution of outstanding issues and the issuance of final validation report and validation opinion

The project activity is installation of 6 units of hydroelectric turbines each rated at 39 MW, thereby totalling to 234 MW. The project is located in Revulapally Village, Gadwal Taluk, Mahaboobnagar District, Andhra Pradesh, India. The entire electricity generated from the project activity will be fed to the Southern Grid, replacing the equivalent amount of fossil fuel dominated grid electricity.

The validation process, from contract review to the issuance of validation report and validation opinion was conducted in accordance with SIRIM QAS Intl.’s internal procedures. The first output of the validation process was a list of corrective action requests and clarification requests (CAR and CL) which is presented in Appendix I of this report. As a result of these findings, the PD was revised by the client.

In summary, it is the opinion of SIRIM QAS Intl. that the proposed VCS project activity has correctly applied the baseline and monitoring methodology (ACM 0002 Version 11) for the project activity and meets the relevant VCS 2007.1 requirements. Total GHG emission by the Project is 364,520 tonnes of CO2 per annum and the estimated GHG reductions from the project would be real, measurable, permanent and additional.

Work carried out by:	Number of pages:
Dr. G. Vishnu (Lead Auditor)	21
Mr. R. Vijayaraghavan (Technical Expert)	
Mr. Jayaram (Financial Expert)	

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Abbreviations

ACM	Approved Consolidated Methodology
AP	Andhra Pradesh
APDISCOM	Andhra Pradesh Power Distribution Companies Limited
APERC	Andhra Pradesh Electricity Regulatory Commission
APGENCO	Andhra Pradesh Power Generation Corporation Limited
APSEB	Andhra Pradesh State Electricity Board
CAR	Corrective Action Request
CEA	Central Energy Authority
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
EB	Executive Board
EF	Emission Factor
EPC	Engineering Procurement Construction
GHG	Greenhouse gas(es)
IDC	Interest During Construction
INR	Indian Rupees
IRR	Internal Rate of Return
kW	Kilowatt
MoEF	Ministry of Environment and Forests
MU	Million Units
MWh	Megawatt hour
PD	Project Description
PLF	Plant Load Factor
QA/QC	Quality Assurance/Quality Control
SIRIM QAS Intl.	SIRIM QAS International Sdn Bhd
VCS	Voluntary Carbon Standard
VCU	Voluntary Carbon Unit

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Appendix I: Validation Protocol based on VCS requirements

1 Introduction

Andhra Pradesh Power Generation Corporation Limited (APGENCO), (hereinafter referred to as the 'Project Proponent') has contracted SIRIM QAS International Sdn Bhd, Malaysia to undertake the validation of its project titled "Hydro Power Project in backward district of Andhra Pradesh, India" (hereinafter referred to as the project / project activity) under the Voluntary Carbon Standard (VCS) 2007.1 standard^{/1/}. This report describes the validation work undertaken.

1.1 Objective

The purpose of the validation is to perform an independent, third party assessment of whether the project activity confirms to the qualification criteria set in the VCS 2007.1 standard^{/1/} to attain real, measurable, additional, and permanent emission reduction.

The validation statement / opinion is a written assurance that the project complies with all the applicable VCS requirements and has the ability to generate the emission reductions stated over the projects crediting period.

1.2 Scope and Criteria

The validation scope includes an independent and objective review of the Project VCS project description (PD), the project's baseline study, monitoring plan and other relevant documents. Specifically, the objectives of the validation work involve:

- To verify that the project activity meets the requirements of VCS 2007.1 standard^{/1/} including additionality, proof of title and compliance with local laws.
- To assess whether the baseline and monitoring plan are in conformance with the methodology applied from the VCS approved GHG program.
- To certify that the information presented are complete, consistent, transparent and free of material error.

The Project Description was reviewed against VCS 2007.1 standard and the VCS program guidelines and the applied CDM methodology, ACM 0002 Version 11^{/2/}. SIRIM QAS has performed the validation based on a risk based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate VCUs. The work carried out by SIRIM QAS Intl. is free from any conflict of interest.

1.3 VCS project Description

The project activity is installation of 6 units of hydroelectric turbines each rated at 39 MW, thereby totalling to 234 MW. The project is located in Revulapally village, Gadwal Taluk, Mahaboobnagar district of Andhra Pradesh, India. The entire electricity generated from the project activity will be fed to the Southern Grid, replacing the equivalent amount of fossil fuel dominated grid electricity.

1.4 Level of assurance

In line with VCS 2007.1 requirements and as per ISO 14064-3:2006 Para A.2.3.2, a reasonable level of assurance has been followed for the validation of the project. Based on the desired level of accuracy SIRIM QAS Intl. has established an internal

quality control process and assures that the information given in the PD is materially correct and is a fair representation of the of the actual project details, and is prepared in accordance with the VCS requirements and the applied CDM methodology for information pertaining to additionality, GHG quantification, monitoring and reporting.

The validation report is carried out as per this requirement and details are presented in the validation statement in section 4 below.

2 Methodology

The SIRIM QAS Intl's validation process consists of the following phases:

- a document review of the project design documents and preparation of validation protocol;
- on-site visit to the project activity and interviews with project developer, project consultant; and relevant stakeholders
- resolution of outstanding issues and the issuance of final validation report and opinion

In order to ensure transparency, a validation protocol was customised for the project according to the VCS 2007.1 guidelines^{1/}. The protocol describes criteria (requirements), means of verification, results from the validating and how the identified criteria, have been met in a transparent manner. 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.

The validation protocol consists of Appendix I, where findings established during the validation were classified as non-fulfillment of validation protocol criteria or where risks to the fulfillment of project objectives were identified. Corrective Action Request (CAR) was issued, where:

- mistakes have been made that directly impact on the project results; or
- validation protocol requirements have not been met; or
- there was a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

The validation team has also raised "Clarification" (CL), where additional information is needed to fully clarify an issue.

The following team members from SIRIM QAS Intl. were involved in identifying the following:

Name	Role	Components reviewed
Dr. G. Vishnu	Lead Auditor	Completeness check, desk review, onsite inspection, Interview with project representatives & stakeholders, issuance of findings, report preparation
Mr. R. Vijayaraghavan	Technical Expert	Desk review, onsite inspection, Interview

		with project representatives, report preparation
Mr. Jayaraman	Financial expert	Additionality issues
Mr. K. Sudheendra	Technical Reviewer	Technical Issues related to project

2.1 Review of Document

The first PD^{/3/} version 1.0 submitted by the client and additional background documents related to the project design and baseline were reviewed as an initial step of the validation process. As a result, final PD^{/4/} version 2.0 was submitted by the PP.

A desk review was further done to assess the following parameters:

1. Project details as per VCS PD template
2. Applicability and Appropriateness of methodology used
3. Compliance with relevance laws and regulation
4. Correctness of application of baseline and monitoring methodology
5. Demonstration of additionality
6. Monitoring Plan
7. Stakeholders' comment
8. Proof of title
9. Supporting documents mentioned in the PD (Grid emission factor, commissioning certificate etc.)

A complete list of all the documents reviewed is attached in Appendix-I of this report.

2.2 Follow-up Interviews

After the review of the Project description and documents a site visit was carried out from 25th to 26th of April 2010. During the site visit physical inspection of the project components followed by interviews with the on-site personnel was carried out to verify the project details. A follow-up meeting was also conducted with the project representatives. The following persons were interviewed.

Name & Designation	Company	Details of Interview
Mr. Devender Rao Chief Engineer-	APGENCO	Technical Details, Monitoring system, calibration frequency, Grid connectivity & power evacuation system / Infrastructure. Loan Sanction Documents, Power Purchase Agreement, Land Ownership details, Purchase Order details, Overall Project management. Baseline, Additionality, Barrier analysis, ER calculations, Financial calculations, Proof of title
Mr. Srinivasa Chakravarthy- Divisional Engineer		

During the site visit, the actual on-site practices adopted and followed for the operation of the project were compared with the description given in the PD. The grid-connectivity, metering practices, calibration and level of accuracy were examined. The archived data of the energy generated was also reviewed.

2.3 Resolution of Corrective Action Requests and Clarifications

The objective of this phase of the validation is to resolve the request for corrective actions and clarification and any other outstanding issues which needed to be clarified prior to SIRIM QAS Intl.'s conclusion on the project design based on the site inspection and review of documents, such that the project activity meets the VCS 2007.1 requirements. Fourteen (14) Corrective Action Requests (CAR) and seven (7) Clarification Requests (CL) raised by the validation team were resolved during communication between the client and SIRIM QAS Intl.'s validation team. In order to ensure the transparency of the validation process, the concerns raised and responses that have been documented in Appendix I of this report.

2.4 Internal Quality Control

SIRIM QAS Intl. has established an internal quality control process. A Technical Reviewer has been appointed to review the final draft validation report. The final draft report will also be tabled to the VCS Board after all findings have been resolved.

3 Validation Findings

3.1 Project Design

Project identification, design & development and implementation were evaluated as per the requirements of VCS 2007.1. The project involves 6 x 39 MW bulb type hydroelectric turbine generators which generate voltage at 11 kV and is stepped up to 220 kV by 50 MVA step up transformers. The turbines are of horizontal shaft, single runner, axial flow bulb type turbines. The discharge and design head of the project is 1440 m³/sec and 18 m respectively.

The validation team has reviewed the commercial operation dates of the commissioned units at the time of validation. The earliest commercial operation date for Unit I which was on 18th Aug 2008 had been taken as the start date of the project activity. This date was the earliest commercial operation date of all the units installed in the project activity. This was confirmed through the review of the commissioning certificates^{/5/}. PP has chosen a renewable crediting period for the period of 10 years starting from 18th August 2008 to 17th August 2018. The validation team has accepted this considering the 35 year life of hydro-electric turbines which was confirmed by reviewing the Power Purchase Agreement^{/6/}.

The project so far has not created any other form of environmental credit. The project is eligible for seeking registration under CDM separately in the near future. However, the VCUs revenue will be considered only for the period during which no CDM/CER benefits are claimed. The VCS crediting period will be terminated in between if the project activity achieves CDM registration.

In line with the VCS requirements, proof of title of the project proponent was verified with the EPC contract^{/7/} and PPA^{/6/}.

To ensure that the environmental credits generated by the project are not double counted under VCS, an undertaking letter^{/8/} was provided by APGENCO indicating that the project activity is not claiming credits from other forms of GHG programmes. The project has not been rejected under other GHG programmes. The Project meets the general requirements of VCS 2007.1 with respect to Project start date, Project scope and Crediting period according to clause 5.1, 5.2 and 5.3.

Six CARs (CAR 1, CAR 2, CAR 4, CAR 5, CAR 6 and CAR 14), three CLs (CL 1, CL 2 and CL 3) and two FARs (FAR 1 and FAR 2) were raised for issues related to project identification, project description, project design parameters assumption, double counting and crediting period which were adequately addressed, resolved and closed in revised PD version 2. The resolution of each CAR and CL is represented in Appendix I of this report.

3.2 Baseline

The Project applies the Approved consolidated baseline and monitoring methodology ACM0002^{/2/} Version 11. The below section details how the project activity fulfills the applicability conditions of ACM 0002.

No	Criteria	Validation by DOE
1	This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	From the on-site visit to the project site and review of the EPC contract ^{/7/} , commissioning certificates ^{/5/} and Power Purchase Agreement ^{/6/} , it was confirmed that the project activity is a Greenfield hydropower project supplying electricity to the Southern Grid. Therefore, it complies with this condition.
2	The methodology is applicable under the following conditions: The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	It was confirmed from the on-site visit and commissioning certificates ^{/5/} that the project activity is the installation of hydropower plant with a run-of-river reservoir supplying electricity to the Southern Grid. Therefore, it complies with this condition.
3	In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter EGPJ,y): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	From the EPC contract ^{/7/} and commissioning certificates ^{/5/} , it was verified that the project activity is a Greenfield plant and that it did not involve a capacity addition or a retrofit or a replacement of an existing plant. Therefore, this condition is not relevant to the project activity.

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No	Criteria	Validation by DOE
4	<p>In case of hydro power plants, one of the following conditions must apply:</p> <ul style="list-style-type: none"> o The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or o The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m²; or o The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m². 	<p>It was confirmed from the onsite visit and commissioning certificates^{/5/} that the project activity is a hydropower plant with run-of-river scheme from which it can be concluded that there is no change in the volume of reservoir and there is no upstream pondage. The validation team has reviewed the DPR of the project where it is mentioned that the project is a run of river type and the project is implemented in the existing reservoir. The reservoir was built in 1992 and no change in volume of reservoir was undertaken. The water spread at full water reservoir level (FRL) is 74.35 hectare which gives a power density of 314 W/m². DPR is also approved by the Central Electricity Authority (CEA). Therefore, this condition that the project activity is implemented in an existing reservoir, with no change in the volume of reservoir, is met.</p>
5	<p>The methodology is not applicable to the following:</p> <ul style="list-style-type: none"> • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; • Biomass fired power plants; • Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m². 	<p>From the onsite visit to the project sites and commissioning certificates^{/5/}, it was confirmed that the project activity only contains the renewable components i.e. hydro units with run-of-river scheme where there is no change in reservoir volume and the power density is 314 W/m². which is more than 4 W/m². Therefore, this condition is not relevant to the project activity.</p>
6	<p>In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.</p>	<p>From the on-site visit to the project sites and the commissioning certificates^{/5/}, it was confirmed that the project activity is a Greenfield project. Therefore, this condition is not applicable.</p>

The validation team by reviewing the EPC contract^{/7/}, commissioning certificates^{/5/} and power purchase agreement^{/6/} has concluded that the project is grid-connected hydropower generation project activity that installs a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant).

The electricity generated from the project activity will be supplied to the Southern Grid of India. The grid connectivity was verified through the PPA^{6/} and physical connection to the grid at sites. Thus, the validation has concluded that the project activity complies with all the requirements of selected methodology ACM 0002 Version 11.0.

The project boundary includes the project power plant and all power plants connected physically to the electricity system that the VCS project power plant is connected to. The project boundary encompasses the physical and geographical site of the six hydro units. It includes the turbines, generators, transformers, transmission lines, metering equipment, connected grid sub-stations and Southern Grid. Thus, the project boundary defined in the PD is correct and as per ACM 0002 Version 11.

As per the applied methodology, the project boundary is defined as “the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to”. It includes the hydro turbine, generators, transformers, metering equipment and regional electricity grid. The project activity is a renewable energy project and hence there are no emissions resulting from its implementation. The emissions of gases (CO₂) are attributed to the electricity produced in the Southern Grid. The project boundary was found to be in accordance with the requirements of the applied methodology which was confirmed during the on-site visit. Thus, the validation team concludes that the PD correctly describes the project boundary, including the physical delineation of the proposed CDM project activity.

As per the applied methodology, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”^{9/}. The validation team therefore confirms that the selected baseline scenario (Southern Grid) reasonably represents what would happen in the absence of the project activity. Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.

During the validation, two CARs (CAR 3 and CAR 7) were raised for issues related to methodology applicability which were adequately addressed, resolved and closed in revised PD version 2. The resolution of each CAR is as in Appendix I of this report.

Additionality

As laid out in the ACM0002, Additionality tool^{10/} version 05.2 is used for the justification of additionality of the concerned project activity. Since the baseline was predefined in the selected methodology, no further analysis was done in identifying the alternatives. For the project activity, Southern Grid is the baseline.

The project has proved additionality based on the following

- Barrier analysis
- Common Practice Analysis

1) Barrier Analysis

a) Lack of prevailing practice

The validation team has independently accessed confirmation letter^{11/} provided by Power Finance Corporation (PFC) which states that the proposed project activity is installation of six bulb type turbine generators of 39 MW capacity each which is the first of its kind in India. Based on the letter by PFC^{11/}, the validation team has concluded. that the proposed project activity was the first of its kind of its size coming up in India. The APGENCO would thus be setting the precedence and thus would also encourage private investors to come up for the development of the tremendous hydro power potential existent in the state of Andhra Pradesh. The validation team has also verified the UNFCCC website^{19/} and found none of the 40 hydro projects (No of registered projects -23 & No of projects at validation stage -17) were using the bulb type turbines in the comparable size and capacity. So, existence of this barrier is confirmed for bulb type hydro turbine project of its size as there is no precedence project in India.

b) Technological barrier- Lack of know-how technology

The bulb type turbine and generator hydro unit of this large scale (6 x 39 MW) is first of its kind in India and hence there exists a lack of know-how. Moreover, the hydro units are supplied by China National Machinery and Equipment Import and Export Corporation of China whose technology is new to the Indian market. As a result, APGENCO also discussed about the imparting intensive training to the technical staff. Since the commissioning of the project activity, APGENCO is facing problems in getting skilled manpower for the project. The reluctance of skilled people to come and work in a remote location is to be tackled by devising a higher compensation structure. This, however, adds additional costs (salaries, training costs, service fees) making lesser project returns.

c) Financial barrier-

The validation team has also reviewed the document prepared by PFC^{11/}, the financial lender to the project, which stated that the additional revenue through the carbon credit is required in terms of securing returns for the project and would improve the debt servicing capacity and added that revenue from carbon credit would sustain the project in long run.

d) Hydrology risks-

The validation team based on the DPR^{12/} report observed that uncertainty with respect to the availability of water in the river on which the proposed project is constructed is a major concern. The policy of Andhra Pradesh Government is water will be used primarily for irrigation and power sector is the least priority. Knowing well of this policy, PP has taken risk in installing the hydro power plant. Moreover, the requirement / consumption of water for irrigation crops are not uniform. During the path of river and upstream of the project site there are several branch canals which divert water for irrigation purposes in the region. In case irrigation pattern at the upstream side of the proposed project changes due to local pressures then the water availability at the project site for power generation will be affected. Though sufficient head is available for power generation, due to uncertainty in the hydrology as explained above, the power projections may not represent the true situation, which is a barrier.

e) Geology risks-

During the onsite assessment, the validation team has observed that there is a possibility of water carrying a lot of silt. This will block the flow of water into the

channel and choke intake pipes. Hence, the project operation demands frequent periodical maintenance at a remote place to remove the accumulated silt, reducing the plant availability for power generation. This will damage the power channel, which in turn will effect power generation and unexpected plant outages. The could result in the project generating power for only 5 to 6 months in a year. Any breakdown within this period will affect operation of the power plant and power generation, since bringing back the plant in operation may take considerable time during the monsoon season.

f) Lack of infrastructure-

The area of the project of the hydro-electric scheme is an underdeveloped area as verified from the onsite assessment. No infrastructure such as roads, electricity, communication, transportation and proper civic amenities etc. were available in the Revulapally Village, Gadwal Taluk. The project proponents developed these facilities before implementation of the project. This adds to the project cost and makes a burden for even public investors in the hydroelectric sector.

g) Institutional barrier-

As per the Andhra Pradesh Electricity Regulatory Commission (APERC) tariff regulations^{13/}, the recovery of annual fixed charges is directly linked to the availability of the machines. Two units of the hydro machines were down for almost 2 years because of stator failure which is due to earth relay fault. Since due to non-availability of machines in this period, APGENCO had lost two years of revenue due to recovery of fixed charges. It took two years to rectify the damage which was due to lack of technology know-how.

The validation team has reviewed the approval letter^{14/} by The Central Electricity Authority, New Delhi which had issued Techno Economic Clearance to the project activity at an estimated cost of INR 452.91 Crores including IDC of INR 65.84 Crores) way back in 1992. Subsequently administrative approval was also accorded by the erstwhile APSEB. Accordingly, technical sanction was accorded for civil works amounting to INR 69.52 Crores (including IDC of INR 10.10 Crores) and for E&M works amounting to INR 362.58 Crores (including IDC of INR 52.67 Crores). But due to the inordinate delay in implementation of the project, the project cost, as per the revised DPR, was escalated to INR 546.53 Crores including IDC. Power Finance Corporation (PFC) has sanctioned a loan amount of 80% of the project cost only.

During the execution of the project, an additional amount was required to meet the increased costs of various account heads i.e. civil works, E&M works, IDC charges and overheads. So the revised project cost was escalated to INR 720 Crores due to cost overrun.

The project faces several institutional barriers. The Govt. of Andhra Pradesh and Govt. of Karnataka had met in 1978 and principally agreed that both the Governments would go ahead with the proposed project activity. After several meetings conducted at various stages, finally Govt. of AP, had proposed that the project activity would be directly executed by the erstwhile APSEB and made it clear that 50% of the cost of the project would be borne by Government of Karnataka to be eligible for 50% power sharing. But due to delay in finalising the said agreement, the implementation of the project was also delayed and hence the cost overrun reached INR 720 Crores including IDC charges. The sizing of the unit and energy calculation in the original DPR (1992) were based on the hydrology data from 1965-66 to 1988-89. As it took considerable time to get concurrence from Karnataka to share the cost

and benefits from the project, the implementation took much more time than expected. The signing of an MOU is a pre-requisite for obtaining data required for the preparation of feasibility report as well as enabling the government to buy power from the project activity. This delay has changed the project cost parameters. It was estimated that the project investment was went up by almost 58% due to escalation in costs. It is also observed that due to AP Government's policy, irrigation projects are to get the priority over the power projects. Under these circumstances, the project proponent had discussed all these developments in greater detail and decided that the project activity could be developed under a GHG programme to enable for generation of additional stream of revenue by sale of emission reductions from the project activity. The delay in implementation of the project is mainly due to the lack of proper institutional support to the project. The project participants could not get necessary clearances in time and only after a long struggle, the APGENCO obtained approval for the power sharing. The agreement with Govt of Karnataka is not yet signed at the time of validation.

In view of the above findings, the validation team has concluded that the project is additional and the VCU revenue is required for sustainability of the project.

Three CARs (CAR 8, CAR 9 and CAR 10) and one CL (CL 4) were raised for issues related to additionality which were adequately addressed, resolved and closed in revised PD version 2. The resolution of each CAR and CL is represented in Appendix I of this report.

2) Common practice analysis

The validation team has checked the project activity against the requirements of additionality tool for common practice analysis.. To substantiate the additionality of the project, the validation team had undertaken the common practice analysis. The validation team has observed that as on 31 May 2007, 23 hydro power projects in India had been registered by the UNFCCC, while 17 projects were in the validation stage. Of the 23 registered projects, only 9 projects are large scale power projects, with capacity ranging from 20 MW to 37 MW only one registered project has an installed capacity of 192 MW (Allain Duhangan Hydroelectric Project (ADHP), Himachal Pradesh, India) and none of the large scale projects are registered from Andhra Pradesh. Only one small scale hydro power project is registered with UNFCCC as CDM project from Andhra Pradesh (4.05 MW Grid connected Small Hydroelectric Project in Andhra Pradesh, India).

Also, of the 17 projects under validation, only 4 projects are of large scale hydro power projects, with installed capacity ranging from 21 MW to 34 MW. Only one project has an installed capacity of 96 MW (Jorethang Loop Hydroelectric Project, Sikkim, India) and two small scale hydro power projects were in the validation stage from Andhra Pradesh. The low penetration rate of large scale projects from India reflects the barriers faced by these projects in the region. The barriers mentioned above are some of common barriers faced by the large scale hydro power project developers.

Hence, APGENCO-6X39MW Priyadarshini Jurala Hydroelectric Project is not a common practice in Andhra Pradesh and also in India.

Sub-step 4. Discuss any similar options that are occurring:

Below is a tabulated comparison of large scale hydro power projects in India either registered or in the validation stage. For the simplification of comparison, a project

which is of more than 100 MW capacity is considered with one having a capacity of 96 MW.

Parameters	Project 1	Project 2	APGENCO project
Title of the project	Allain Duhangan Hydroelectric Project (ADHP)	Jorethang Loop Hydroelectric Project, India	APGENCO-6X39MW Priyadarshini Jurala Hydroelectric Project
Location	Himachal Pradesh, India	Sikkim , India	Andhra Pradesh, india
Capacity	192MW	96MW	234MW
Technology	Use of conventional technology for generation of power. (Source: CDM PDD of Allain Duhangan Hydroelectric Project (ADHP))	2 x 48 MW vertical shaft type Francis turbines, (Source: CDM PDD of Jorethang Loop Hydroelectric Project, India)	Large Bulb type turbine generators with capacity 39MW each
CDM or VCS registered	Registered (CDM)	Registered (CDM)	

As can be seen above, the project activity is the largest hydro-electric power project ever been submitted to UNFCCC EB for registration from India and also includes first time installation of bulb type turbine generators of large capacity 39 MW each for hydro power generation.

In view of the above findings, it is concluded by the validation team that the establishment of the hydro energy based electricity generation of the concerned scale is not a common practice in the state of Andhra Pradesh. Based on the barrier and common practice discussions, it is evident that the project faces significant barriers and is additional. Hence, APGENCO's project activity is not a common practice and is a fit case for VCS registration.

One CAR (CAR 11) was raised for issues related to common practice analysis which were adequately addressed, resolved and closed in revised PD version 2. The resolution of each CAR and CL is represented in Appendix I of this report.

3.3 Monitoring Plan

The project uses the monitoring methodology based on "Approved consolidated baseline and monitoring methodology ACM0002^{2/} Version 11"

With respect to the project activity, the only parameter that requires a continuous measurement and monthly recording is the amount of electricity (EGy in MWh) that is generated by the project activity. The electricity is generated at 11 kV and is stepped up to 220 kV by a 50 MVA transformer located at the switch yard. Monthly recording of JMR is taken at 220 kV step up transformer. The electricity supplied to the grid will be cross checked with records for sold electricity. In addition, the grid emission factor (EG_{grid,CMY}) is taken *ex-ante*. The grid emission factor for Southern Grid is calculated as per CEA database^{15/} version 5.0 which is prepared in tune with the "Tool to calculate the emission factor for an electricity system" Version 2.0^{9/} hence accepted by the validation team has correct.

Description of the monitoring plan

According to ACM 0002, there are only 2 variables that a hydro project needs to monitor; these are $EG_{P,J,y}$ (Net Electricity Generated) and $EF_{grid,CM,y}$ (Grid Emission Factor). $EF_{grid,CM,y}$ has been taken as ex-ante and remains constant throughout the crediting period. The on-site visit confirmed that the net electricity supplied to the grid is measured through the meter readings of the energy meters installed by electricity board, which have facility to record export and import of energy.

Monthly meter readings shall be jointly taken by the authorized representatives of both parties (APGENCO and APDISCOM). If the readings demonstrate a level of inaccuracy greater than the prescribed limits, the main meter shall be immediately tested for accuracy. APGENCO shall submit to APDISCOMS a monthly bill based on meter reading that has been signed by both the parties.

One set of 0.2 class energy meters has been installed at each point of interconnection. Each set will consist of a main meter and check meter. The main meter will be installed and maintained by APGENCO and the check meter by APDISCOM. These meters shall be jointly calibrated, inspected and sealed by and on behalf of APGENCO and APDISCOM and shall not be interfered with except in the presence of the other party on mutual consent of parties.

The monitoring plan also describes requirements for calibration of all the measurement equipment used for monitoring the project activity variables. The main and check meters will be calibrated once in five years which is as per CEA guidelines. The monitoring frequency for EG_y matches with that of the methodology and monthly recording. The cross checking of the same is provided through the use of the sales invoices. Project participant has provided for electronic archiving of all the monitored data and its availability 2 years after the end of the last crediting period. The validation team therefore agrees that the project activity meets all the applicability conditions and all other stipulations of the selected approved methodology ACM0002 Version 11.

The validation team physically verified the metering system installed at the project site and at the substation of the project activity. The validation team confirmed that the description in the revised PD version 2 represents the metering system available at the project activity sites.

The Project Document describes the responsibility and authority for registration, monitoring, measurement, reporting and archiving in Section 3.4 of the PD.

During validation, two CARs (CAR 12 and CAR 13) and one CL (CL 5) were raised on the monitoring practices followed for calculation of energy supplied to the grid, QA/QC procedures followed, apportioning of the generated electricity, monitoring equipment used for estimating the generated electricity and the billing procedure. The issues were adequately addressed, resolved and closed in revised PD version 2. The resolution of each CAR and CL is represented in Appendix I of this report.

3.4 Calculation of GHG Emissions

The GHG source for calculation of the Baseline has been chosen as CO_2 and no other sinks or reservoirs for either the baseline or the project activity have been identified. The validation for key parameters in determining the project emissions, baseline emissions and leakage emissions are mentioned below.

Project emissions:

As per the applied methodology for hydro power project activities that result in new reservoirs and hydro power project activities that result in the increase of existing reservoirs, CH₄ and CO₂ emissions from the reservoir need to be accounted for as the project emissions. Since the power density of the project activity is more than 10 W/m² (power density being 314 W/m²), project emissions is considered to be zero. This is in line with the applied methodology Version 11. Hence accepted by the validation team.

Baseline emissions:

As per the applied methodology ACM0002 version 11, baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The validation of key parameters in determining the emission reductions are mentioned below.

Parameters	Justification by the validation team
Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y ($EG_{PJ,y}$) = 403,800 MWh/year	PP has considered the quantity of net electricity supplied to the grid from the DPR and PPA which, the validation has reviewed and accepted the value as correct. Since the project activity is a Greenfield project, the formula used to calculate the baseline emissions are accepted by the validation team. This parameter is calculated ex-post for the emission reduction calculations.
CO ₂ emission factor for grid connected power generation in year y ($EF_{grid,CM,y}$) = 0.9027 tCO ₂ e/MWh	As per the applied methodology, CO ₂ emission factor for grid connected power generation is calculated as combined margin calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” version 2.0. Since PP has considered CEA database version 5.0 which is based on “Tool to calculate the emission factor for an electricity system” version 2.0, the validation team has accepted the value as correct and authentic. This parameters is used as ex-ante parameter for the calculation of baseline emissions in year y.
Baseline emissions in the year y = 364,520 tCO ₂ e/year	As per the applied methodology, baseline emissions are calculated as follows: $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ The validation team has accepted the same as correct.

Leakage emissions:

As described in ACM0002, the leakage emissions are to be considered as zero which the validation team has accepted as correct.

Emission reductions:

As per the applied methodology, emission reductions are calculated as follows:

$$\begin{aligned} ER_y &= BE_y + PE_y + LE_y \\ &= 364,520 + 0 + 0 \\ &= 364520 \text{ tCO}_2\text{e/year} \end{aligned}$$

The validation team assessed the calculations of estimated VCUs as provided by project participant in a spreadsheet^{/4/}. The estimated annual average of approximately 364,520 tCO₂e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project. All the assumptions for this estimate either come from the assumptions used for grid emission factor as taken from CEA website^{/15/} (Version 5.0). The validation team confirms that the estimates of baseline emissions can be replicated using the information provided and the formulas are correctly applied and the calculations done in a transparent way. The validation of calculation of emission reductions is given below.

3.5 Environmental Impact

The validation team has reviewed the clearances and approvals^{/16/} and observed that there are no ill effects of the project activity. The project has also received the consent of operation from the Andhra Pradesh Pollution Control Board (APPCB). That the project meets the stipulated limits will be monitored as part of the overall VCS process and their compliance reported. The PP had obtained all the necessary clearance and approvals^{/17/} for implementation of the project activity. There were no significant environmental impacts of the project on the environment due to the implementation of the project activity.

One CL (CL 6) was raised for issues related to environmental aspect which was adequately addressed, resolved and closed in revised PD version 2. The resolution of the CL is represented in Table 2 of Appendix I of this report.

3.6 Comments by stakeholders

A local stakeholder consultation meeting was conducted on 8th July 2008 at the Project Guest House at Revulapally Village, Gadwal Taluk, Mahaboobnagar District of Andhra Pradesh, India in order to identify the concerns of the stakeholders regarding the implementation of the project activity. The meeting was attended by 57 people.

The stakeholders identified for the project were: the occupants of the villages around the project site, the local communities, NGOs, state government, governmental agencies, employees, contractors and consultants/advisors. Their views were taken to understand their opinion on the proposed emission reductions project activity. A public notice^{/18/} to hold the stakeholder consultation meeting was displayed at various locations, informing all about the venue, time and the agenda of the meeting and requesting their presence in form of attendance.

The Chief Engineer – Commercial of APGENCO had addressed the gathering by explaining about the environmental aspects of the proposed project activity. . He also described about the GHG causing pollution. Later on, he described to the people about Kyoto Protocol ratified by India to mitigate the environmental pollution. He also described about the technical specifications of the hydro project and its positive benefits of the project. PP's initiative towards constructing roads, school, hospital facilities and offered jobs to the local people at the site which was appreciated by all the stakeholders and they informed that they were looking forward to take up similar GHG reduction projects in near future. After a brief discussion regarding the consequences and impacts of this project activity the comment pertaining to project activity were received and answered in the meeting. The participants sought clarifications on Kyoto Protocol and Clean Development Mechanism processes. The stakeholders concerns during the meeting were focussed towards short term and long term impacts that this project would pose on the environment. Questions regarding the employment opportunities were also raised by the stakeholders which was responded to positively by the project proponent and there was agreement that the proposed project is a beneficial project. Therefore the stakeholders did not identify any negative impact of the project activity and the session ended up with a unanimous decision favouring PP to go ahead with the project activity. The validation team was also able to interview some of the stakeholders who were attended the meeting and concluded the local stakeholder meeting was conducted in line with the VCS requirement.

One CL (CL 7) was raised for issues related to local stakeholder meeting which were adequately addressed, resolved and closed in revised PD version 2. The resolution of the CL is represented in Table 2 of Appendix I of this report.

4 Validation conclusion

SIRIM QAS Intl. performed a validation of the proposed VCS project “Hydro Power Project in backward district of Andhra Pradesh, India”. The validation was carried out to independently assess whether the project confirms to the qualification criteria and requirements of the Voluntary Carbon Standard (VCS) 2007.1, including the baseline and monitoring methodology applied. The VCS program provides the standard and framework for independent validation based on ISO 14064-2:2006 and ISO14064-3:2006 standards.

The validation was performed using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews provided SIRIM QAS Intl. with sufficient evidence to determine the fulfillment of the stated criteria.

The project activity is a VCS project activity by the Andhra Pradesh Power Generation Corporation Limited (APGENCO), which involves the installation of hydro power plant (6 x 39 MW) totaling to 234 MW. The project applies the approved baseline and monitoring methodology “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM 0002 Version 11.

The project will result in the reduction of greenhouse gas emissions that are real, measurable and give long term benefits to the mitigation of climate change. It is demonstrated that the project used barrier analysis to prove the additionality. Emissions reductions from the project are hence additional to any that would occur in the absence of the project activity.

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The GHG emission calculations are documented in a complete and transparent manner. The formulae and methodologies for accounting GHG emissions are appropriate and emission factors are deemed to be of sufficient accuracy. The total emission reductions from the project if implemented as envisaged in the PD version 2 dated 1st August 2010 is 364,520 tCO₂e per year. The emission reductions forecast has been checked and it is deemed likely that the stated amount is achievable on the basis that the underlying assumptions do not change.

The monitoring plan is in line with the approved monitoring methodology of ACM 0002 Version 11. The plan adequately addresses all necessary information for monitoring and reporting of emissions reductions due to the project activity. Responsibilities and authorities for project management, monitoring and reporting, and the data quality control and quality assurance procedures have been described in the PD. The project is not likely to create any significant adverse environmental impacts. The project complies with all environmental regulations of India.

In summary, it is SIRIM QAS Intl.'s opinion that the "Hydro Power Project in backward district of Andhra Pradesh, India", as described in the PD version 2 dated 1st August 2010, meets all relevant VCS 2007.1 requirements, is eligible as category I of the Large scale renewable energy generation project type and correctly applies the baseline and monitoring methodology specified in ACM 0002 (version 11).

As such, SIRIM QAS Intl. recommends the registration of the project as a VCS project activity.

Prepared by :



Dr. G. Vishnu
(Validation Team Leader)

Approved by :



Parama Iswara Subramaniam
(DOE Representative)

5.0 References

Ref. No.	Document or Type of Information
/1/	VCS 2007.1 Standard, Program guidelines, Registration and Issuance guidance document
/2/	CDM approved consolidated baseline methodology ACM 0002 Version 11
/3/	VCS Project Description (PD) Version 1 and its annexures
/4/	VCS Project Description (PD) Version 2 and its annexures
/5/	Commissioning certificates
/6/	Power Purchase Agreement
/7/	EPC Contract
/8/	Undertaking letter
/9/	Tool to calculate the emission factor for an electricity system (Version 2.0)
/10/	Tool for the demonstration and assessment of additionality (Version 5.2)
/11/	PFC letter
/12/	DPR
/13/	Andhra Pradesh Tariff regulations
/14/	CEA Approvals and clearances
/15/	Central Electricity Authority: CO2 Baseline Database for the Indian Power Sector. Version 05,
/16/	Approvals
/17/	NOC
/18/	Local stakeholder consultation documents

Appendix I: Resolution of Corrective Action and Clarification Requests

Table 1: Requirements Checklist

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
General Requirements					
1.1 Project start date					
Is the project start date correctly specified in the PD as per VCS 2007.1?	5.2.1	DR	Yes, the start date of the project is correctly specified in the PD. To be checked by reviewing the commissioning certificates.		
		SV	PP is requested to submit the document to support the crediting period start date.	CAR-1	OK
1.2 Project scope					
Have the project proponents applied an approved VCS Program methodology or a methodology from an approved GHG Program based on the list of current VCS Program approved GHG Programs and methodologies as set out on www.v-c-s.org?	5.2.2	DR	Yes, the project has applied an approved methodology from an approved GHG Program based on the list of current VCS Program approved GHG Programs and methodologies. The project has applied an approved CDM methodology, ACM 002. Version 11.		
		SV	The project has applied an approved CDM methodology ACM version 11.	OK	OK
1.3 Methodology deviations and revisions					
Is any methodology deviations described and justified?	5.3 and 5.4	DR	No deviation is observed. To be checked during onsite.		
		SV	Site observation also confirmed that there is no deviation is observed	OK	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
1.4 Standards and Factors					
Is the standards and factors used to arrive at the baseline and additionality?	5.5	DR	Yes, PP has used CEA data to determine baseline emissions which is correct.		
		SV	Onsite observation also confirmed the same.	OK	OK
1.5 Grouped projects					
Is this a grouped project?	5.6	DR	This is a grouped project.		
		SV	The project activity consists of 6 hydro units.	OK	OK
1.6 Content of the VCS PD					
Is the PD used as a basis for validation prepared in accordance with the latest template and guidance from the VCS?	5.7	DR	Yes, the project description has been prepared in accordance with VCS 2007.1		
		SV	The project description was confirmed during the onsite observation.	OK	OK
Is the template used for PD considers the requirements specified in the VCS 2007.1	5.7	DR	Yes. The template used has all the required information.		
		SV	The template used has all the required information	OK	OK
Is there a summary description of the project given?	5.7	DR	PP specified the nature of grid connection to be checked during onsite. But document to support life time is not provided.		
		SV	PP is requested to submit document to support the estimated life time of the project	CAR-2	OK
		SV	PP is requested to clarify how much of power is being shared between the buyers such as APDISCOM and Karnataka DISCOMs in the actual scenario with evidences.	GL-1	OK
		SV	PP is requested to substantiate how the estimation of design energy of 403. 8 MU, 348 MU and 159.9 MU complies with EB 48, Annex 11.	GL-2	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
			It is not clear how 348 MU (after 10 th year) and 159.9 MU (after 21 st year) are arrived at.		
		SV	It is indicated in the PD that the design energy, the quantum of energy which could be generated in a 90% dependable year with 95% installed capacity of the generation. PP is requested to further demonstrate in clear terms the 90% dependable year and how is it arrived at.	CL3	OK
		SV	PP is requested to clarify the following parameters in clear terms (including the basis of arriving at each parameters during the actual operation of the project 1. Design energy 2. Declared capacity 3. Maximum available capacity 4. Capacity charges 5. Primary charges 6. Secondary charges 7. Annual fixed charges 8. Primary energy charge recoverable 9. Capacity index	CL4	OK
Is the sectoral scope and project type of the project given?	5.7	DR	The given sectoral scope and project type of the project are correct, Sectoral scope: 1 – energy industries (renewable sources).		
		SV	It is accepted by the validation team as the project is a hydro energy project.	OK	OK
Is the project location and geographical boundaries indicated?	5.7	DR	It is provided in the PD. To be checked during onsite visit.		

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
		SV	It has been verified and confirmed at site that the project is a grouped project.	OK	OK
Is the condition (existing) prior to project initiation described?	5.7	DR	The proposed project activity is a greenfield project and there is no activity undertaken prevailing prior to the project implementation,		
		SV	It is conformed that the proposed project activity is a greenfield project and there is no activity undertaken prevailing prior to the project implementation. It is indicated in the PD that the proposed project activity is a Green field project. Kindly provide the document to support the same.	CAR-3	OK
Does PD describe how the project will achieve GHG emission reductions and/or removal enhancements?	5.7	DR	PD describes that hydro project does not emit any emissions.		
		SV	It is also verified during onsite.	OK	OK
Is the contact information and roles/responsibilities for the project proponents given?	5.7	DR	The roles and responsibilities are described in the PD. To be checked during onsite with PD		
		SV	It is provided in the PD and that matches with the onsite observation.	OK	OK
Is the contact information and roles/responsibilities for any other entities involved in the development of the project given?	5.7	DR	The roles and responsibilities are described in the PD. To be checked during onsite with PD		
		SV	It is provided in the PD and that matches with the onsite observation.	OK	OK
Is the project start date specifying the day, month and year given?	5.7	DR	The project start date is correctly mentioned in the PDD. It is the first unit that was commissioned among the hydro units.		
		SV	Please provide the following for validation. 1. Power Purchase agreement 2. Commissioning Certificates	CAR-4	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
			3. Document to support commercial operation dates for the six units		
		SV	PP to provide commissioning certificates for remaining units also to the verification DOE.	FAR 1	OK
Is the project crediting period specifying the day, month and year for the start and end dates and the total number of years given?	5.7	DR	The project start date of crediting period is correctly mentioned in the PDD. It is the first unit that was commissioned among other hydro units.		
		SV	PP is requested to submit the document to support the crediting period start date.	Depends on CAR-1	OK
Is the scale of the project (project or mega) and the estimated annual GHG emission reductions or removals for the project crediting period given?	5.7	DR	It is agreed that the scale of the project is 'project'. The estimated annual GHG emission reductions is mentioned in the PD.		
		SV	Onsite assessment confirmed the same.	OK	OK
Is a description of the project activity, including the technologies or measures employed and how emission reductions/removals are achieved given?	5.7	DR	The description of the project activity is mentioned in the PD. To discuss further at site.		
		SV	Details of the technologies and measures employed in the project activity provided in the PD are confirmed ok.	OK	OK
Is the lifetime of the project activity indicated?	5.7	DR	The lifetime of the project activity is given as 35 years. Please provide supporting evident. To discuss further at site.		
		SV	PP is requested to submit document to support the estimated life time of the project. Refer to CAR 2	Depends on CAR-2	OK
Is it demonstrated that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction?	5.7	DR	It is agreed that the project has not been implemented for the purpose of the subsequent reductions. But evidence was not provided. To be discussed during onsite.		

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
		SV	It is indicated in the PD that the project activity does not result in creation of any other kind of environmental credit as per applicable rules in India. PP is requested to demonstrate the same with evidence	CAR-6	OK
Is it identified and demonstrated the compliance of the project with all relevant local, regional and national laws, statutes and regulatory frameworks?	5.7	DR	The project is in compliance with all relevant local, regional and national laws, statutes and regulatory frameworks. The project proponent needs to provide copies of approval received from the relevant authorities. <i>To be verified further at site.</i>		
		SV	It has been verified during the site visit that the project is in compliance with all relevant local, regional and national laws, statutes and regulatory frameworks. The project proponent needs to provide copies of approval received from the relevant authorities.	OK	OK
Are the evidence of the right of use provided?	5.7	DR	The project proponent needs to provide evident on the 'right of use' with respect to the relevant GHG reductions or removals. <i>To discuss further at site.</i>		
		SV	Please provide documents to support the ownership and title. (PPA and commissioning certificates)	CAR-14	OK
Is it demonstrated that the net reductions or removals will not be used for compliance with emission trading program or meet binding limits on GHG emissions?	5.7	DR	The net reductions or removals will not be used for compliance with emission trading program or meet binding limits on GHG emissions.		
		SV	It has been verified that the net reductions or removals will not be used for compliance with emission trading program or meet binding limits on GHG emissions. But undertaking letter was not provided	Depends of CAR-6	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
Is it indicated whether the project has been registered, or is seeking registration under any other GHG program? If yes, provide registration number and details.	5.7	DR	The project has not been registered, or is seeking registration under any other GHG program.		
		SV	It has been verified that has not been registered, or is seeking registration under any other GHG program. But undertaking letter was not provided.	Depends CAR-6	OK
Is it demonstrated that the project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program, or that any such credit has been or will be cancelled from the relevant program?	5.7	DR	The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals.		
		SV	It has been verified that the project eligible for to generate emission reductions under CDM. But undertaking letter was not provided.	Depends CAR-6	OK
Is it indicated whether the project has been rejected by any other GHG programs? If yes, provide the relevant information.	5.7	DR	The project has not been rejected by any other GHG programs.		
		SV	It has been verified that the project has not been rejected by any other GHG programs. But undertaking letter was not provided.	Depends CAR-6	OK
Is it indicated whether any commercially sensitive information has been excluded from the public version of project description? If yes, briefly describe the items to which such information pertains.	5.7	DR	No. The information provided are not commercially sensitive in nature.		
		SV	The information provided are not commercially sensitive in nature.	OK	OK
Is any additional relevant legislative, technical, economic, sectoral, social, environmental, geographical, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals included?	5.7	DR	Relevant information for the quantification of the project's net GHG emission reductions or removals has been included.		
		SV	Onsite observation conforms the same.	OK	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
1.7 Additionality					
Has the PDD describe how the proposed CDM project activity is additional?	5.8	DR	Yes. The project activity uses barrier analysis to demonstrate additionality.		
		SV	Yes. The PP used barrier analysis to prove the project activity to be additional.	OK	OK
Has the PP provide reliable, credible data, rationales, assumptions, justifications and documentation in the PDD to support the demonstration of additionality?	5.8	DR	To be assessed during onsite.		
		SV	PP has chosen barrier analysis in proving the additionality. In Section sub step 3a of 2.5 of PD, it is mentioned that there was a lack of funding for this project activity. Kindly provide the evidences.	CAR-9	OK
		SV	It is mentioned that high capital cost and risk perception of lenders for a hydro project as a barrier in demonstrating additionality. PP is requested to demonstrate in more project specific terms with evidences.	CAR-10	OK
Assess whether the geographical scope (e.g. the defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type. For certain technologies the relevant region for assessment will be local and for others it may be transnational /global. If a region other than the entire host country is chosen. Please explain why this region is more appropriate.	5.8	DR	Yes. The common practice analysis has been undertaken. To be checked during onsite.		
		SV	PP is requested to demonstrate the common practice analysis with evidences. PP has identified some 40 hydro projects but without any sources that is readily available to the validation team.	CAR-11	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
1.8 Determining the baseline scenario					
Is the project boundary defined?	5.10	DR	The project boundary is clearly defined in the PD. To be checked during onsite.		
		SV	The onsite observation shows that project boundary as defined in the PD is correct.	OK	OK
Is the relevant GHG sources, sinks and reservoirs for the project and baseline scenarios (including leakage, if applicable) identified?	5.10	DR	PD describes the GHG sources, sinks, reservoirs etc.		
		SV	Onsite observation confirms the same.	OK	OK
Is the baseline scenario identified and justified?	5.10	DR	PP does not refer to the “Combined tool to identify the baseline and demonstrate additionality” as required the selected methodology.		
		SV	While demonstrating the barrier analysis, PP does not refer to the Combined tool to identify the baseline as required the selected methodology.	CAR-8	OK
Is the additionality of the project undertaken in accordance with the applied methodology demonstrated and assessed?	5.10	DR	The additionality is undertaken as per the methodology.		
		SV	The onsite observation also conforms the same.	OK	OK
1.9 Monitoring the GHG project					
Is the monitoring plan described?	5.11	DR	To be checked during onsite visit.		
		SV	The monitoring plan does not comply with the prevailing practice as observed by the	CAR-12	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
			validation team at the site. Auxiliary consumption is not monitored as per the PD		
		SV	PP is requested to submit the JMR reading for a month and corresponding month invoices to cross check the monitoring plan.	CAR-13	OK
		SV	The generation voltage of project and stepped up voltage being supplied to the grid is not provided in the PD.	CL-5	OK
Is the organizational structure, responsibilities and competencies identified?	5.11	DR	The organizational structure, responsibilities and competencies identified in the PD. To be confirmed during onsite.		
		SV	Onsite observation confirms the same. Refer to CAR 13 and CAR 14	Depends on CAR 12 & CAR 13	OK
Are the methods for generating, recording, storing, aggregating, collating and reporting data on monitored parameters described?	5.11	DR	The method for generating, recording, storing, aggregating, collating and reporting data on monitored parameters described in the PD.		
		SV	Onsite observation confirms the same. Refer to CAR 13 and CAR 14	Depends on CAR 12 & CAR 13	OK
Are procedures for handling internal auditing and non-conformities described?	5.11	DR	The procedures for handling internal auditing and non-conformities described in the PD.		
		SV	Onsite observation confirms the same. Refer to CAR 13 and CAR 14	Depends on CAR 12 & CAR 13	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
1.10 Methodologies					
Is the title, reference and version number of the methodology or methodologies applied to the project provided?	6.0	DR	The CDM approved methodology is applied in the project activity. Methodology ACM 002 (version 11) is correctly quoted.		
		SV	Onsite observation confirms the same.	OK	OK
Is it demonstrated and justified that the project activity meets the applicability conditions of the methodology applied to the project?	6.0	DR	Not all applicable conditions are justified in the PD. To be checked during onsite.		
		SV	It is indicated in the PD that the proposed project activity is built on existing reservoir. Please provide evidence.	GAR-7	OK
1.11 Monitoring, quantification and reporting related to the methodology					
Is the procedure for quantification of the baseline emissions and/or removals described? Are all relevant equations included?	6.5	DR	The quantification of the baseline emissions is based on ACM 002 It is correctly applied. To be checked during onsite.		
		SV	ER table mentioned in the section 1.3 is correct.	OK	OK
Is the procedure for quantification of the project emissions and/or removals described? Are all relevant equations included?	6.5	DR	Project emissions is considered zero for hydro project which is as per the applied methodology		
		SV	The onsite assessment confirms the same.	OK	OK
Is the procedure for quantification of the leakage emissions and/or removals described? Are all relevant equations included?	6.5	DR	Leakage emissions is considered zero for hydro project which is as per the applied methodology		
		SV	The onsite assessment confirms the same.	OK	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
Is the procedure for quantification of net GHG emission reductions and removals described? Are all relevant equations included?	6.5	DR	The procedure for quantification of net GHG emission reductions and removals is accordance to ACM 002.		
		SV	The onsite assessment confirms the same.	OK	OK
Is the ex-ante (estimated) calculation of baseline emissions/removals, project emissions/removals, leakage emissions and net emission reductions and removals provided?	6.5	DR	To be further verified at site.		
		SV	The estimated calculation of baseline and project emissions/removals, leakage emissions and net emission reductions are provided.	OK	OK
Are all data and parameters available at validation described using the table?	6.5	DR	To be discussed further at site.		
		SV	Grid emission factor is calculated as per CEA data which is in line with the "Tool for emission factor for the electricity system."	OK	OK
Are all data and parameters monitored subsequent to validation described using the table?	6.5	DR	<i>To discuss further at site.</i>		
		SV	Data and parameters monitored subsequent to validation are Net quantity of electricity delivered to the grid, EGy	OK	OK
Are any environmental impact assessments carried out with respect to the project, where applicable, summarized?		DR	To be assessed during onsite visit		
		SV	Please provide the following 1. Clearance from MoEF on Environment point of view 2. Clearance from MoEF on forest conservation point of view (if any) 3. Approval of DPR by CEA 4. Techno economic clearance 5. Environment Impact Assessment 6. Concurrence of Andhra Pradesh and Karnataka Governments in sharing the project	GAR-5	OK

CHECKLIST QUESTION	VCS 2007.1	MoV*	COMMENTS	Draft Concl.	Final Concl.
			cost and benefits of the project.		
		SV	Please provide the following 1. Approval of DPR from CEA 2. Environmental Clearances from MoEF. 3. Environment Impact assessment report and its approval by MoEF	GL6	OK
		SV	Concurrence from Govt. of Karnataka to be provided to the verification DOE.	FAR 2	OK
Are relevant outcomes from stakeholder consultations and mechanisms for on-going communication summarized?		DR	To be checked during onsite.		
		SV	PP is requested to submit the process of local stakeholder consultation. Further, PP to submit the public notice, newspaper advertisement, Minutes of meeting with the stakeholders and attendance sheet.	GL7	OK

Table 2: Resolution of Correction Action Requests/Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
<p><u>CAR 1</u></p> <p>PP is requested to submit the document to support the crediting period start date.</p>	<p>Section 1.1/ Section 1.6 of PD</p>	<p>PP has submitted commissioning certificate for unit I which indicates the start date of the crediting for VCS project.</p>	<p>The validation team has reviewed the commissioning certificate for unit I and accepted that the date of commissioning of unit I as start date of the crediting period.</p> <p>Conclusion: CAR 1 is closed.</p>
<p><u>CAR 2</u></p> <p>PP is requested to submit document to support the estimated life time of the project</p>	<p>Section 1.6/ Section 1.6 of PD</p>	<p>PP has provided DPR which referred lifetime of the project to be 35 years. PP has submitted DPR to the validation team. PPA is also submitted to substantiate the same.</p>	<p>The validation team has reviewed the DPR and PPA which refers 35 years life time. The validation team has also reviewed “Tool to determine the remaining lifetime of equipment” which prescribes lifetime as 150000 hours. This works out to be more than 17 years taking 8760 hours per year which is more than the crediting period of 10 years hence accepted. The design energy is also indicated as 35 years in the PPA which confirms the same.</p> <p>Conclusion: CAR 2 is closed.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
<p><u>CAR 3</u></p> <p>It is indicated in the PD that the proposed project activity is a Green field project. Kindly provide the document to support the same.</p>	<p>Section 1.6/ Section 1.7 of PD</p>	<p>The project activity is a new and greenfield project. PP has thereby confirming that there is no renewable energy plant prior to the project activity. EPC contract is provided for validation.</p>	<p>The validation team, from the on-site visit to the project sites and review of the commissioning certificates, EPC Contract and Power Purchase Agreement, has confirmed that the project activity is greenfield Hydro power project supplying electricity to the Southern Grid.</p> <p>Conclusion: CAR 3 is closed.</p>
<p><u>CAR 4</u></p> <p>Please provide the following for validation.</p> <ul style="list-style-type: none"> • Power Purchase agreement • Commissioning Certificates • 3. Document to support commercial operation dates for the six units 	<p>Section 1.6/ Section 1.9 of PD</p>	<p>PP has submitted PPA, Commissioning certificates for two units to indicate commercial operation to the validation team. Commissioning of the other units is expected in next year.</p>	<p>The validation team has reviewed the PPA and commissioning certificates for the two hydro units and accepted the same as an authentic and valid document</p> <p>Conclusion: CAR 4 is closed.</p>
<p><u>CAR 5</u></p> <p>Please provide the following</p> <ul style="list-style-type: none"> • Clearance from MoEF on Environment point of view • Clearance from MoEF on forest conservation point of view (if any) 	<p>Section 1.11/ Section 1.10 of PD</p>	<p>PP has submitted clearance from MOEF. There is no clearance required from forest conservation point of view.</p> <p>Approval of DPR by CEA is submitted to the validation team.</p> <p>Techno economic clearance are submitted to the validation team.</p>	<p>The validation team has reviewed the CEA clearances, MOEF clearances, techno economic clearances and accepted the same as an authentic and valid document. The documents are in order and hence accepted.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
<ul style="list-style-type: none"> • Approval of DPR by CEA • Techno economic clearance • Environment Impact Assessment • Concurrence of Andhra Pradesh and Karnataka Governments in sharing the project cost and benefits of the project. 		Concurrence of Karnataka in sharing the benefits is not yet signed.	Conclusion: CAR 5 is closed.
<p><u>CAR 6</u></p> <p>It is indicated in the PD that the project activity does not result in creation of any other kind of environmental credit as per applicable rules in India. PP is requested to demonstrate the same with evidence.</p>	<p>Section 1.6/ Section 1.13 of PD</p>	PP is not claim for any other carbon credit other than VCS and in future if applied for CDM, VCS credit will be automatically stopped. The undertaking letter is provided in this effect.	<p>The validation team has accepted the undertaking letter and closed the issue.</p> <p>Conclusion: CAR 6 is closed.</p>
<p><u>CAR 7</u></p> <p>It is indicated in the PD that the proposed project activity is built on existing reservoir. Please provide evidence.</p>	<p>Section 1.10/ Section 2.2 of PD</p>	The proposed project activity is a run of river project and as such there is no pondage.	<p>The validation team based on the PPA and onsite visit confirmed that the project is a run of river and the project is built on existing reservoir and new reservoir is not built.</p> <p>Conclusion: CAR 7 is closed.</p>
<p><u>CAR 8</u></p>	<p>Section</p>	The referred tool is used for determining the	The validation team has accepted

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
<p>While demonstrating the barrier analysis, PP does not refer to the “Combined tool to identify the baseline and demonstrate additionality” as required the selected methodology.</p>	<p>1.8/ Section 2.5 of PD</p>	<p>baseline. For the project, baseline is defined in the applicable methodology. PP has used barrier analysis for additionality.</p>	<p>that the determination of baseline as it is in line with the methodology. PP has opted for barrier analysis for proving additionality. Hence accepted by the validation team.</p> <p>Conclusion: CAR 8 is closed</p>
<p><u>CAR 9</u></p> <p>PP has chosen barrier analysis in proving the additionality. In Section sub step 3a of 2.5 of PD, it is mentioned that there was a lack of funding for this project activity. Kindly provide the evidences.</p>	<p>Section 1.7/ Section 2.5 of PD</p>	<p>PP has modified the PD and revised PD is provided to the validation team.</p>	<p>The validation team has reviewed the barrier analysis which includes lack of prevailing practice, technological barrier, institutional barrier etc. and accepted that the project is additional.</p> <p>Conclusion: CAR 9 is closed</p>
<p><u>CAR 10</u></p> <p>It is mentioned that high capital cost and risk perception of lenders for a hydro project as a barrier in demonstrating additionality. PP is requested to demonstrate in more project specific terms with evidences.</p>	<p>Section 1.7/ Section 2.5 of PD</p>	<p>PP has modified the PD and revised PD is provided to the validation team.</p>	<p>The validation team has reviewed the barrier analysis which includes lack of prevailing practice, technological barrier, institutional barrier etc. and accepted that the project is additional.</p> <p>Conclusion:</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
			CAR 10 is closed
<p><u>CAR 11</u></p> <p>PP is requested to demonstrate the common practice analysis with evidences. PP has identified some 40 hydro projects but without any sources that is readily available to the validation team.</p>	<p>Section 1.7/ Section 2.5 of PD</p>	<p>Revised PD with evidences are submitted to the validation team.</p>	<p>The validation team has reviewed the revised PD and checked the project activity against the requirements of additionality tool for common practice analysis. The validation team had observed that as investment decision, 23 Hydro power projects in India have been registered by UNFCCC, while 17 projects are in the validation stage. Of the 23 registered projects, only 9 projects are large scale power projects, with capacity ranging from 20 MW to 37 MW, only one registered project has an installed capacity of 192 MW (Allain Duhangan Hydroelectric Project (ADHP), Himachal Pradesh, India) and none of the large scale projects are registered from Andhra Pradesh.</p> <p>Also of the 17 projects under validation, only 4 projects are of large scale hydro power projects, with installed capacity ranging from 21MW to 34MW, only one project</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
			<p>has an installed capacity of 96MW (Jorethang Loop Hydroelectric Project, Sikkim, India) and two small scale hydro power project is in the validation stage from Andhra Pradesh.</p> <p>The low penetration rate of large scale projects from India as CDM projects reflects the barriers faced by these projects in the region. The barriers mentioned above are some of common barriers faced by the large scale hydro power project developers.</p> <p>Hence concluded that the project is not a common practice in Andhra Pradesh and also in India.</p> <p>Conclusion: CAR 11 is closed</p>
<p><u>CAR 12</u></p> <p>The monitoring plan does not comply with the prevailing practice as observed by the validation team at the site. Auxiliary consumption is not monitored as per the PD.</p>	<p>Section 1.9/ Section 3.3 of PD</p>	<p>The revised PD is submitted for validation. The electricity meter installed at the secondary end of transformer measures export (Electricity generated- auxiliary consumption)</p>	<p>The on-site visit confirmed that Net electricity supplied to the grid is measured through the meter readings of the energy meters installed by electricity board, which have facility to record export and</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
			<p>import of energy. As the auxiliary consumption is accounted for, the validation team has accepted the same.</p> <p>Project participant has provided for electronic archiving of all the monitored data and its availability 2 years after the end of the last crediting period. The monitoring plan also describes requirements for calibration of all the measurement equipment used for monitoring the project activity variables. The main and check meters will be calibrated once in five years. The monitoring frequency for EGy matches with that of the methodology, viz. and monthly recording. The cross checking is provided through the use of the sales receipts. The validation team therefore agrees that the project activity meets all the applicability conditions and all other stipulations of the selected approved methodology ACM0002</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
			Version 11. Conclusion: CAR 12 is closed
<p><u>CAR 13</u></p> <p>PP is requested to submit the JMR reading for a month and corresponding month invoices to cross check the monitoring plan.</p>	<p>Section 1.9/ Section 3.3 of PD</p>	<p>PP is submitted one month JMR report and corresponding invoices raised.</p>	<p>The validation team has reviewed the documents and accepted.</p> <p>Conclusion: CAR 13 is closed</p>
<p><u>CAR 14</u></p> <p>Please provide documents to support the ownership and title. (PPA and commissioning certificates)</p>	<p>Section 1.6/ Section 8 of PD</p>	<p>PPA and commissioning certificates are provided.</p>	<p>The validation team has reviewed the PPA and commissioning certificates to confirm the ownership and title.</p> <p>Conclusion: CAR 14 is closed</p>
<p><u>CL 1</u></p> <p>PP is requested to clarify how much of power is being shared between the buyers such as APDISCOM and Karnataka DISCOMs in the actual scenario with evidences.</p>	<p>Section 1.6/ Section 1.4 of PD</p>	<p>50% of power would be shared between the two states. But the agreement is not yet materialised. Currently electricity is supplied to AP only.</p>	<p>The validation team has accepted the view point of PP. The onsite assessment confirms the same.</p> <p>Conclusion: CL 1 is closed</p>
<p><u>CL 2</u></p> <p>PP is requested to substantiate how the estimation of design energy of 403. 8 MU,</p>	<p>Section 1.6/ Section 1.11 of</p>	<p>DPR was prepared by the third party which conforms to the guideline EB 48 Annex 11. For the first 10 years of the project, design energy would be 403. 8 MU for the first 10</p>	<p>The validation team has reviewed the DPR which was prepared by the third party, confirms that it is as per para 3 of the PLF guideline.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
<p>348 MU and 159.9 MU complies with EB 48, Annex 11.</p> <p>It is not clear how 348 MU (after 10th year) and 159.9 MU (after 21st year) are arrived at.</p>	PD	years and 348 MU (next 10 years) and 159.9 MU for the remaining period of operation of the power plant.	<p>Conclusion:</p> <p>CL 2 is closed</p>
<p><u>CL 3</u></p> <p>It is indicated in the PD that the design energy, the quantum of energy which could be generated in a 90% dependable year with 95% installed capacity of the generation. PP is requested to further demonstrate in clear terms the 90% dependable year and how is it arrived at.</p>	Section 1.6/ Section 1.11 of PD	<p>It is estimated in the DPR and is submitted to the validation team. While planning Hydro Power Projects, discharge data of the river for about 20 continuous years (from 1965-66 to 1988-89) is taken into consideration. Unrestricted energy generation of these hydrological years is arranged in descending order and exceedance probability computed. Based on the exceedance probability, 90% dependable years are identified. If discharge data for 'N' years is available, the 90% dependable year is defined as (N+1) x 0.9 year in the Table arranged in descending order. Power planning of the project is done on the basis of annual generation of 90% dependable years. The energy to be produced in a 90% dependable year is 403.8 MU.</p>	<p>The validation team has reviewed the DPR and accepted.</p> <p>Conclusion:</p> <p>CL 3 is closed</p>
<p><u>CL 4</u></p> <p>PP is requested to clarify the following parameters in clear terms (including the basis of arriving at each parameters during the</p>	Section 1.6/ Section 2.5 of PD	PP has provided the PPA which describes all the parameters.	<p>The validation team has reviewed the PPA and accepted.</p> <p>Conclusion:</p>

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
actual operation of the project 1. Design energy 2. Declared capacity 3. Maximum available capacity 4. Capacity charges 5. Primary charges 6. Secondary charges 7. Annual fixed charges 8. Primary energy charge recoverable 9. Capacity index			CL 4 is closed
<u>CL 5</u> The generation voltage of project and stepped up voltage being supplied to the grid is not provided in the PD.	Section 1.9/ Section 3.3 of PD	The generation voltage is 11 kV and is stepped up to 220 kV by a 50 MVA transformer. The electricity is sold at 220 KV at the grid.	PPA and invoices confirms the same. Onsite visit confirms the same. Conclusion: CL 5 is closed
<u>CL 6</u> Please provide the following 1. Approval of DPR from CEA 2. Environmental Clearances from MoEF. 3. Environment Impact assessment report and its approval by MoEF	Section 1.11/ Section 5 of PD	PP has provided the documents to the DOE	The validation team has reviewed the approvals, clearances and accepted. Conclusion: CL 6 is closed
<u>CL 7</u>	Section 1.11/	PP has provided the local stakeholder consultation meeting details.	The validation team has reviewed the minutes of meeting, public

Draft report clarifications and corrective action requests by validation team	Ref. to Section of the Table 1/PD	Summary of project owner response	Validation team conclusion
PP is requested to submit the process of local stakeholder consultation. Further, PP to submit the public notice, newspaper advertisement, Minutes of meeting with the stakeholders and attendance sheet.	Section 6 of PD		notice and accepted. Conclusion: CL 7 is closed
<u>FAR 1</u> PP to provide commissioning certificates for remaining units also to the verification DOE.	Section 1.6/ Section 1.9 of PD	PP will submit the commissioning certificates to the verifying DOE.	The validation team has accepted
<u>FAR 2</u> Concurrence from Govt. of Karnataka to be provided to the verification DOE.	Section 1.11/ Section 1.9 of PD	PP will submit the concurrence letter to the verifying DOE.	The validation team has accepted