



VALIDATION REPORT

VIET NAM POWER DEVELOPMENT JOINT STOCK COMPANY

VALIDATION OF THE KHE BO HYDROPOWER PROJECT

REPORT No. VIETNAM-VAL/0006/2011

REVISION No. 03

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

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Client: Viet Nam Power Development Joint Stock Company	Client ref.: Mr. Nguyen Thanh Tung

Summary:

Bureau Veritas Certification has made the validation of the "Khe Bo Hydropower Project" of "Vietnam Power Development Joint Stock Company" located in Tam Quang, Yen Thang, Tam Dinh, Tam Thai, Thach Giam, Xa Luong Communes and Hoa Binh town, Tuong Duong District, Nghe An Province, Vietnam on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, 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.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 Version 13.0.0 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: VIETNAM-val/0006/2011	Subject Group: CDM
Project title: Khe Bo Hydropower project	
Work carried out by: Tran Viet Hoang, Team Leader Ram M. Desai, Team Member Nguyen Hong Linh, Team Member Sushil Budhia, Financial Expert	
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Abbreviations

BVC	Bureau Veritas Certification
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
DNA	Designated National Entity
DOE	Designated Operational Entity
DR	Document Review
EIA	Environmental Impact Assessment
ERPA	Emission Reductions Purchasing Agreement
EVN	Electricity Vietnam Group
FSR	Feasibility Study Report
GHG	Green House Gas(es)
I	Interview
IRR	Internal Rate of Return
LCLR	Local Commercial Lending Rate
LoA	Letter of Approval
MoV	Means of Verification
MP	Monitoring Plan
NGO	Non-Government Organization
ODA	Official Development Assistance
PDD	Project Design Document
PIR	Prime Interest Rate
PP	Project Proponent (Project owner)
PPA	Power Purchase Agreement
PPC	People Provincial Committee
RI	Report Issuance
SV	Site visit
UNFCCC	United Nations Framework Convention for Climate Change
VND	Vietnamese Dong (Vietnamese Currency)
VNEG	Vietnamese National Electricity Grid
VVM	Validation and Verification Manual



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1 INTRODUCTION

Vietnam Power Development Joint Stock Company (hereafter called "Project Owner") has commissioned Bureau Veritas Certification to validate its CDM project "Khe Bo Hydropower Project" (hereafter called "the Project") of Vietnam Power Development Joint Stock Company (VNPDJSC) at Tam Quang, Yen Thang, Tam Dinh, Tam Thai, Thach Giam, Xa Luong Communes and Hoa Binh town, Tuong Duong District, Nghe An Province, Viet Nam.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC 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 UNFCCC and host country criteria 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 CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

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, UNFCCC 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 Validation team

The validation team consists of the following personnel:

FUNCTION	NAME	CODE HOLDER*	TASK PERFORMED
Team Leader	Tran Viet Hoang	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Team Member	Ram M. Desai	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Team Member	Nguyen Hong Linh	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Technical Specialist	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Financial Specialist	Sushil Budhia	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI
Internal Technical Reviewer (ITR)	Ashok Mammen	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input checked="" type="checkbox"/> RI
Specialist supporting ITR	N.A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI

*DR = Document Review; SV = Site Visit; RI = Report issuance

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, according to the Version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM 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 completed validation protocol is enclosed in **Appendix A** to this report.

2.1 Review of Documents

The Project Design Document (PDD) **/Ref-1/** submitted by the Project Owner and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol,



Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action requests and clarification requests the Project Owner revised the PDD and resubmitted it on 21/11/2012. The validation findings presented in this report relate to the project as described in the PDD Version 04 **/Ref-2/**.

2.2 Follow-up Interviews

On 26/04/2011, Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Vietnam Power Development Joint Stock Company were interviewed (see **Section 6**). The main topics of the interviews are summarized in Table 1.

Table 1: Interview topics

Interviewed organization	Interview topics
Vietnam Power Development Joint Stock Company (Project Owner)	<ul style="list-style-type: none"> ➤ Project background and CDM consideration ➤ Project technology, operation, maintenance and monitoring capability ➤ Project monitoring and management plan ➤ Stakeholder consultation process ➤ Project approval status (EIA, FSR...) ➤ Hydroelectric power development in Nghe An Province ➤ Government policies related to hydroelectric power projects development ➤ Applicability of selected methodology ➤ Baseline scenario identification ➤ Emission reductions calculation ➤ Emission reductions monitoring plan ➤ Investment analysis for additionality of the project
Local Stakeholder (Representative of People Committee, local people affected by Project)	<ul style="list-style-type: none"> ➤ Project background in details ➤ Stakeholder comments on project development ➤ Social and environment impact of the project

2.3 Resolution of Clarification and Corrective Action Requests

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 positive conclusion on the project design.

Corrective Action Requests (CAR) is issued, where:



- a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- b) The CDM requirements have not been met;
- c) There is a risk that emission reductions cannot be monitored or calculated.

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in **Appendix A**.

2.4 Internal Technical Review

The validation report underwent a Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

- The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Validation Team and discusses these matters with Lead Verifier.



After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized validation report is accepted for further processing such as uploading on the UNFCCC webpage.

3 VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in **Appendix A**.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in **Appendix A**. The validation of the Project resulted in **27** Corrective Action Requests (CARs) and **07** Clarification Requests (CLs).

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the VVM paragraph.

3.1 Approval (49-50)

The DNA of Vietnam has issued a Letter of Approval (LoA) on 31/01/2012 (No: 03/2012/DMHCC-BCD), authorizing "Viet Nam Power Development Joint Stock Company" as the Project Participant and confirmed that the Project contributes to Vietnam's sustainable development **/Ref-3/**

The LoA indicates that Vietnam is a Party of the Kyoto Protocol and moreover the participation in "Khe Bo Hydropower Project" is voluntary. The LoA does not contain a specific version of the PDD and the validation report. The title and contents of the LoA refer to the precise proposed CDM project activity title in the PDD being submitted for registration.

Bureau Veritas Certification considers the LoA is in accordance with paragraph 45 – 48/VVM and complying with the host country's objectives of promoting sustainable development.

The validation did not reveal any information that indicates that the Project can be seen as a diversion of official development assistance (ODA) funding towards the host country.



3.2 Participation (54)

The project participant of this CDM project activity is Vietnam Power Development Joint Stock Company which has been approved by a Party of the Kyoto Protocol.

The information of project participant is consistent throughout the PDD and also consistent with the MoC and LoA.

Complying with paragraph 54/VVM, Bureau Veritas Certification concluded this by referring to the information on UNFCCC website:

<http://maindb.unfccc.int/public/country.pl?country=VN>

3.3 Project design document (57)

Complying with paragraph 57/VVM, Bureau Veritas Certification hereby confirms that the PDD complies with the “Project Design Document Form (CDM – PDD)” Version 03 [1] and “Guidelines for completing the Project Design Document (CDM-PDD)” Version 07 [2].

3.4 Changes in the Project Activity

The final PDD Version 04 **/Ref-2/** has the following changes as compared to the web-hosted PDD Version 01 **/Ref-1/** that was web hosted:

- The Project Participant – “Gazprom Marketing & Trading Singapore Pte. Ltd.” has withdrawn from the Project and transferred all the rights and responsibilities to the Project Owner. By verifying the contract termination document **/Ref-45/** and considering the unilateral status allowed by the Host Country DNA (i.e. Vietnam), the validation team confirms the change as appropriate.
- The Project location has been revised to: “Tam Quang, Yen Thang, Tam Dinh, Tam Thai, Thach Giam, Xa Luong Communes and Hoa Binh town, Tuong Duong District, Nghe An Province, Vietnam”. This was according to **CAR-4** raised during validation process. Details of justifications are available in the Table 2 of **Appendix A**.
- The Project ER has been reduced from 251,401 tCO₂e/MWh per anual to 242,416 tCO₂e/MWh per anual. This was due to the applying of conservative values for EF calculation based on data from Vietnam DNA. Detail justifications are available in **Section 3.6.4**.
- The start date of the crediting period has been revised to “01/04/2013 or the date of registration, whichever is later”. This was according to **CAR-11** raised during validation process. Details of justifications are available in the Table 2 of **Appendix A**.



- The applicability conditions have been updated according to the latest methodology ACM002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” Version 13.0.0 [3]. Detail information is available in **Section 3.6.1**.
- The Project IRR has been revised from 10.71% to 11.12%. This was according to **CAR-15**, **CAR-16** and **CAR-17** raised during validation process. Details of justifications are available in the Table 2 of **Appendix A**.
- The Common Practice Analysis has been updated according to the latest “Tool for the demonstration and assessment of additionality” Version 7.0.0 [5]. Detail information are available in **Section 3.7.5**.

3.5 Project description (64)

The Project is located in Tam Quang, Yen Thang, Tam Dinh, Tam Thai, Thach Giam, Xa Luong Communes and Hoa Binh town, Tuong Duong District, Nghe An Province, Vietnam. The Project has coordinates as below:

19°8'0" Northern latitude
104°41'0" Eastern longitude

The total installed capacity of the Project is 100 MW with 02 turbines which are imported from China. The Project activity involves the construction of a dam, intake, penstock, power house, tail water and a reservoir with surface area of 9.6 km², resulting in a power density of 10.4 W/m². A discharge channel is also built to convert potential flowing energy from Ca River into clean electrical energy.

The Net Annual Electricity generated from the Project is 436,158 MWh will be supplied to the national grid through 220kV transmission line. At the connection point, the digital and bi-directional power meter systems will be installed to measure import and export electricity of the hydropower plant.

The process undertaken by Bureau Veritas Certification to validate the accuracy and completeness of the project description including the documentation check; cross-check with Feasibility Study Report **/Ref-5/**; Equipment Supply Contract **/Ref-8/**.

Complying with paragraph 64/VVM, Bureau Veritas Certification hereby confirms that the Project description in the PDD Version 04 **/Ref-2/** is accurate and complete in all respects.

3.6 Baseline and monitoring methodology

3.6.1 General requirement (76-77)

The project uses the approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 13.0.0 [3]. The assessment of the relevant information contained in the PDD against each applicability conditions is described below:

No.	Applicability criteria	Validation assessments
1	<p>This methodology is applicable to grid-connected renewable power generation project activities that:</p> <p>(a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (green field plant);</p> <p>(b) involve a capacity addition;</p> <p>(c) involve a retrofit of (an) existing plant(s); or</p> <p>(d) involve a replacement of (an) existing plant(s)</p>	<p>By checking the FSR /Ref-5/ and through on-site validation, the validation team confirms that the project activity involves the installation of a new hydropower plant at a site where no renewable power plant was implemented previously (green field plan). Thus, the criterion (a) is applicable.</p>
2	<p>The project activity is the installation or, 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.</p>	<p>By checking the FSR /Ref-5/ and through on-site validation, the validation team confirms that the project activity involves the installation of a new hydropower project with an accumulation reservoir. Thus, this criterion is applicable.</p>
3	<p>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 $EG_{PJ,y}$): 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.;</p>	<p>According to the above criterion 1 and criterion 2, the validation team confirms that the project activity does not involve any capacity addition, retrofit or replacement. Thus, this criterion is not applicable.</p>
4	<p>In case of hydro power plants, one of the following conditions must apply:</p> <ul style="list-style-type: none"> - The project activity is implemented in an existing single or multiple reservoir, with no change in the volume of any of reservoirs; 	<p>By checking the FSR /Ref-5/ and through on-site validation, the validation team confirms that the project results in a new</p>



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	<p>or</p> <ul style="list-style-type: none"> - The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the project emissions section, is greater than 4 W/m^2; or - The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the project emissions section, is greater than 4 W/m^2. 	<p>single reservoir with water face area of 9.6 km^2. According to the calculation in Section 3.6.4 below, the power density of this reservoir is 10.4 W/m^2 which is greater than 4 W/m^2. Thus, this criterion is applicable.</p>
5	<p>In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m^2 all the following conditions must apply:</p> <ul style="list-style-type: none"> - The power density calculated for the entire project activity using equation 5 is greater than 4 W/m^2; - Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project that collectively constitute the generation capacity of the combined power plant; - Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; - Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4 W/m^2, is lower than 15 MW; - Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than 4 W/m^2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs. 	<p>By checking the FSR /Ref-5/ and through on-site validation, the validation team confirms that the project results in a new single reservoir. Thus, this criterion is not applicable.</p>
6	<p>This methodology is not applicable to 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;</p>	<p>By checking the FSR /Ref-5/, the Equipment contract /Ref-8/, the validation team confirms that the project does not involve switching from fossil fuels to renewable energy. Thus, this criterion is not applicable.</p>
7	<p>This methodology is not applicable to the biomass fired power plants;</p>	<p>According to the above criterion 1 and criterion 2, this is a hydro power project. Thus, this criterion is not applicable.</p>



8	This methodology is not applicable to hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the power plant is less than 4 W/m ² .	According to the above criterion 4 , the power density of the Project's reservoir is greater than 4 W/m ² . Thus, this criterion is applicable.
9	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".	According to the above criterion 1 and criterion 2 , the validation team confirms that the project activity does not involve any capacity addition, retrofit or replacement. Thus, this criterion is not applicable.
10	In addition, the applicability conditions included in the tools referred to above apply: <ul style="list-style-type: none"> - Tool to calculate the emissions factor for an electricity system" - Tool for demonstration and assessment of additionality 	By checking the PDD Version 04 /Ref-2/ and comparing with the requirement of ACM0002 Version 13.0.0 [3] , the validation team confirms the use of the applied tools.

Based on the above assessments, the validation team hereby confirms that the approved monitoring methodology by the CDM Executive Board, tool and other methodology component are applicable to the project activity which comply with all the applicability conditions therein.

3.6.2 Project boundary (80)

The spatial extent of the Project boundary is clearly defined in line with the ACM0002 Version 13.0.0 **[3]** as the physical, geographical site of Project and all other power plants connected physically to the Vietnamese National Electricity Grid (VNEG).

The validation team has confirmed the project boundary as mentioned in the PDD by information getting from site visit and from verifying the FSR **/Ref-7/** and other Project's documents related to equipment **/Ref-8/** and structure **/Ref-10/**. The Project boundary is identified as: Dam, Reservoir, Turbines, Generators, Transformers and the VNEG.

The identification of GHG gases sources is done by PP appropriately and it is demonstrated in the PDD as follows:



	GHG's Involved	Description
Baseline emissions	CO ₂	The baseline emission factor for the project is determined ex-ante as a combined margin (CM), consisting of the weighted average of the operating margin (OM) and Build Margin (BM) emission factors. The CM emission factor for the grid which is connected to the Project power plant is calculated as 0.5558 tCO ₂ /MWh (see Section 3.6.4)
Project Emissions	No Project Emission	According to ACM0002 Version 13.0.0 [3], the project emission is considered as zero for hydropower project that has single reservoir with power density greater than 10 W/m ² .
Leakage Emissions	No Leakage Emission	According to ACM0002 Version 13.0.0 [3], leakage emissions are not applicable and hence excluded.

Complying with paragraph 80/VVM, Bureau Veritas hereby confirms that the identification of the Project boundary and the sources and gases selected is in line with the delineation of grid boundaries.

The validation team also confirms that, as a result of the implementation of proposed CDM project activity, there are no GHG emissions occurring within the proposed project boundary, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

3.6.3 Baseline identification (87-88)

The steps taken to assess the requirement given in paragraph 81 and 82 of the VVM are described below:

As the Project is the installation of a newly built and grid-connected renewable power plant that delivers the generated electricity to the grid, hence, according to methodology ACM0002 Version 13.0.0 [3], the baseline scenario is properly determined as:

“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.”

Currently, in Vietnam, only EVN exclusively operates the national electricity grid which is the unique transmission and distribution line. All power plants in Vietnam are physically connected to the line, is project electricity system. Therefore, baseline scenario of the proposed project is determined as the delivery of equivalent amount of annual power output from the Vietnam national grid which connected to the proposed project.



Complying with paragraph 87 and 88/VVM, Bureau Veritas Certification hereby confirms that:

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)

The steps taken to assess the requirement outlined in paragraph 89 the VVM are described below:

Project Emissions (PE_y)

As per ACM0002 Version 13.0.0 [3], the Project Emissions include:

- Project emissions from fossil fuel consumption ($PE_{FF,y}$). This value is zero as the project does not involve fossil fuel consumption.
- Project emissions from the operation of geothermal power plants due to the release of non-condensable gases ($PE_{GP,y}$). This value is zero as the project is not geothermal power plant)
- Project emissions from water reservoirs of hydro power plants ($PE_{HP,y}$). According to the calculation provided in Section B.6.1 of the PDD, the project has a single reservoir with power density of 10.4 W/m^2 . The power density is greater than 10 W/m^2 and hence the emission value from reservoir is considered as zero.

The validation team verified the calculation data by cross-checking with the FSR /Ref-5/ and confirmed that the calculation formulas used are in accordance with ACM002 Version 13.0.0 [3]. Hence, $PE_y = 0$.

Baseline Emissions (BE_y)

The grid emission factor is calculated according to the procedures prescribed in the latest "Tool to calculate the emission factor for an electricity system" Version 2.2.1 [4] as required by approved consolidated methodology ACM0002 Version 13.0.0 [3]. In accordance with the "Tool to calculate the emission factor for an electricity system" Version 2.2.1 [4], the grid emission factor is determined ex-ante as a Combined Margin



(CM) emission factor consisting of the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor.

The data used for calculation are from the “Vietnam National Grid Emission Factor Calculation” issued by the Vietnam DNA on 26/03/2010 **/Ref-9/**, which is most recent information available at the time of CDM-PDD submission to Bureau Veritas Certification for validation. The calculation is justified as follows:

- For the calculation of the OM emission factor ($EF_{grid,OM,y}$), the simple OM method is justified since low-cost must-run plants constitute less than 50% of the total grid generation on 5 year average of 34.77% (respectively: 39.71% in 2004, 32.52% in 2005, 34.13% in 2006, 33.74% in 2007 and 34.72% in 2008) **/Ref-9/**. Data on power generation by type of fuel used were sourced from “Report of Hydropower Projects in Vietnam power system 2004 – 2008” given by the Vietnam DNA **/Ref-9/**. The OM is properly calculated as total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system, not including low-cost must-run power plants (Option A1). Vintage data from year 2006 – 2008 which considered the consumption amount and Net Calorific Value (NCV) of fossil fuel used by each power plant and the IPCC CO₂ emission factor for fossil fuels at lower limit of the uncertainty at the 95% confidence interval were used (ex-ante) for OM calculation. The OM emission factor was calculated to be **0.6241** tCO₂e/MWh.
- The BM emission factor ($EF_{grid,BM,y}$) was calculated ex-ante as per Option 1. Data was used as the most recent information available on plants already built for sample group “m” at the time of PDD submission **/Ref-9/**. The sample group “m” consists of the power plant capacity additions in the electricity system that comprise 20% of the system generation (16,514,761.12 MWh) because aggregated annual generation out of those power plants was larger than the five power plants that have been built most recently (7,829,812.02 MWh). The BM emission factor was calculated as the generation weighted average emission factor of the sample group m and arrived to be **0.4876** tCO₂e/MWh.
- The weights w_{OM} and w_{BM} are selected as 0.5 as per “Tool to calculate the emission factor for an electricity system” Version 2.2.1 **[4]** to determine the grid emission factor. Hence, the CM emission factor ($EF_{grid,CM,y}$) is calculated as **0.5558** tCO₂e/MWh and fixed ex-ante for the first crediting period.

The validation Team confirms that the grid emission factor of **0.5558** tCO₂e/MWh was calculated accurately using the latest grid data at the time of validation. The annual average electricity delivered to the VNEG is expected to be 436,158 MWh/year, so the annual average baseline emission of the project is **242,416** tCO₂e/year.

**Leakage Emissions (L_y):**

No leakage has to be considered as per methodology [3].

Emission Reductions (ER_y):

$$ER_y = BE_y - PE_y = 242,416 \text{ tCO}_2\text{e}$$

Based on the above calculations and results, the implementation of the project activity will result in an ex-ante estimation of average annual emission reduction conservatively calculated to be **242,416 tCO₂e/year** for the selected crediting period.

Complying with paragraph 92 and 93/VVM, Bureau Veritas Certification hereby confirms that:

- (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

3.7 Additionality of a project activity (97)

The steps taken and sources of information used, to cross-check the information contained in the PDD on this matter is described below:

“Tool for Demonstration and Assessment of Additionality” Version 7.0.0 [5] has been employed for demonstrating and assessing the additionality of the Project. The additionality of the Project has been carefully checked, in doing so Bureau Veritas Certification has put the main focus on the following issues:

3.7.1 Prior consideration of the clean development mechanism (104)

The start date of the Project identified in the PDD is 05/10/2007 on which the First Major Construction contract signed **/Ref-10/**. The start date is before 02/08/2008 and prior to the PDD submitted to Bureau Veritas Certification for validation. The project participant is required to prove its CDM consideration by indicating the CDM awareness and the continual real action to secure the CDM status for the project in parallel with its implementation in accordance with paragraph 102/VVM.



The PDD has addressed the serious consideration on the incentives from CDM prior to the Project implementation as per the “Guidelines on the demonstration and assessment of prior consideration of the CDM” Version 04 [6]. Prior to the start date 05/10/2007, the investment decision has been made on 18/04/2007 based on the approved FSR /Ref-5/, in which the CDM revenue has been considered as decisive investment value revenue source. On 03/07/2007, the project participant had organized the meeting with local people and local authorities to consult opinion on the Economic, Environmental and Social impacts and on implementation of the project with consideration as a CDM project activity /Ref-15/. The next event, on 12/09/2007, the project participant had signed the CDM Consultancy Agreement with CERtech Environment Inc. on Buyer seeking and ERPA negotiation /Ref-17/. As these real actions are prior to the start date of project activity, validation team confirms that, the requirement of CDM awareness prior to serious CDM consideration is compliant with the “Guidelines on the demonstration and assessment of prior consideration of the CDM” Version 04 [6].

Complying with paragraph 102/VVM, Bureau Veritas Certification verified this issue which was considered much related to the additionality of the Project and can conclude that the serious consideration under the context of the project has been addressed appropriately in accordance with above guidelines. Consequently, the chronological events described with the relevant documented evidences can form the objective basis of the validation opinions of Bureau Veritas Certification (see Table 2 in **Section 3.7.1.1**).

Pursuant to latest version (Version 07) of Glossary of CDM terms [7], Bureau Veritas Certification was able to verify that the starting date of the Project of 05/10/2007 identified in the PDD is appropriate.

The assessment of the Prior Consideration of the project activity is conducted by consulting the UNFCCC website, and the Bureau Veritas Certification hereby confirms that the Period for Comments related to this project activity is from 17th Feb 2011 to 18th Mar 2011, and that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.

3.7.1.1 Historical information on project timeline

It has been demonstrated by timeline of events of the Project that the CDM revenues was seriously considered in the decision to proceed with the Project prior to start of the Project. Besides, the gap between actions was less than 2 years so it could be proved that the continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.



In accordance with paragraph 102/VVM, the validation team has checked the evidences and their authenticity to confirm the project proponent has real intention to implement the project with CDM assistance and had make continual and real actions to secure the CDM status for the project. The project timeline meets all the requirements of "Guidance on demonstration and assessment of prior consideration of the CDM" Version 04 [6].

Table 2: Timeline of Prior Consideration of CDM

Actions taken	Date	Document verified
Completion of First Feasibility Study Report (FSR)	20/10/2005	/Ref-4/
Completion of Environment Impacts Assessment Report (EIA)	30/07/2006	/Ref-6/
EIA approval	13/09/2006	/Ref-7/
Minutes of Meeting on CDM with CERtech Environment Inc.	18/01/2007	/Ref-12/
Revised FSR updating Financial Analysis values and including CDM revenues	22/02/2007	/Ref-5/
Acquisition of Project Approval (issued by Ministry of Industry based on the first FSR and the revised FSR)	02/04/2007	/Ref-11/
Board meeting on CDM consideration	12/04/2007	/Ref-13/
Board decision on the CDM development (investment decision date)	18/04/2007	/Ref-14/
CDM stakeholder consultation meeting	03/07/2007	/Ref-15/
Investment License Issuance	08/08/2007	/Ref-16/
Consultancy Agreement between the PO and CERtech Environment Inc. for finding a CER Buyer and ERPA negotiation	12/09/2007	/Ref-17/
Project construction start up (starting date of Project activity)	05/10/2007	/Ref-10/
ERPA signed with Certech Environment Inc.	08/11/2007	/Ref-18/
Bank loan agreement	08/03/2008	/Ref-19/
Nghe An Province People Committee sent a CDM development supporting letter to Vietnam DNA	31/07/2008	/Ref-20/
Vietnam DNA issued PIN Approval letter	17/03/2009	/Ref-21/
Equipment contract was signed	18/04/2009	/Ref-8/
CDM development agreement for Khe Bo project was signed	22/01/2010	/Ref-22/
ERPA signed with Gazprom Marketing & Trading Singapore Pte. Ltd.	25/02/2010	/Ref-23/
GSC PDD was uploaded	17/02/2011	http://cdm.unfccc.int/Projects/Validation/DB/6L40S3MWC7CQ9H44OTD0TLRU



		XP8XB6/view.html
Host Country (Vietnam) LoA was issued	31/01/2012	/Ref-3/

3.7.2 Identification of alternatives (107)

Subsequently, Bureau Veritas Certification validated the additionality as addressed in the PDD of the Project.

According to “Tool for demonstration and assessment of additionality” Version 7.0.0 [5] and ACM0002 Version 13.0.0 [3], the project activity is not “first-of-its-kind”, hence Step 0 of the applied tool is not applicable. The plausible and credible alternatives to the Project are identified by Step 1 of the applied tool as follows:

- The proposed project activity without CDM
- Continuation of the current situation (The proposed project will not be built and the power will be supplied only from the National grid)

Complying with paragraph 105/VVM, Bureau Veritas Certification considers the listed alternatives to be credible and complete. Hence step 1 of the applied tool was confirmed as appropriate.

3.7.3 Investment analysis (114)

Considering the baseline scenario as above identified, the Benchmark Analysis was applied in the Investment Analysis as per the sub – step 2b of Step 2 of “Tool for demonstration and assessment of additionality” Version 7.0.0 [5]

In accordance with “Guidelines on Assessment of Investment Analysis” Version 05 [8], the selected benchmark is Local Commercial Lending Rate (LCLR) at the date of investment decision (18/04/2007), which is considered as **12.375%**. By checking the Decision No.632/QD-NHNN (which defined the prime lending rate as 8.25%) **/Ref-24/**, Civil Law No.33/2005/QH11 (which allowed commercial banks to charge up 150% of the prime lending rate) **/Ref-25/** and considering the lending rate published on December 2007 by the International Monetary Fund (which is 13.7%) **/Ref-26/**, the validation team confirms that the benchmark was selected suitably with “Guidelines on Assessment of Investment Analysis” Version 05 [8] and is reliable at the time of investment decision, which is in line with paragraph 112/VVM

The project IRR was calculated pre-tax using the financial parameters as table below:

Table 3: Financial parameters for Project IRR calculating

Parameters	Unit	Value	Validation assessment
Installed capacity	MW	100	By checking the FSR /Ref-5/ and the FSR Approval /Ref-11/ , the validation team confirms this value is appropriate.
Net electricity generation	MWh	436,158	By checking the FSR /Ref-5/ and the FSR Approval /Ref-11/ , the validation team confirms that this value is equal 1.5% deducting from gross electricity generation (442,800 MWh). Thus, the Net electricity generation has been calculated correctly.
Project lifetime	Year	40	By checking the Decision No.709/QD-NLKD dated 13/04/2004 /Ref-27/ , the validation team confirms that identified project lifetime is in accordance with the national guidelines.
Plant Load Factor	%	50.54	This value was derived as per the correlation between the annual electricity production of the plant (442,800 MWh), total installed capacity and the maximum annual hours. These information was indicated in the official letter from PEEC1 (authorized third party that made the FSR) /Ref-47/ . Hence, this is complied with the "Guidelines for the reporting and validation of Plant Load Factor" Version 01 [10] .
Total investment cost	10 ⁹ VND	2,146.928	<p>The total investment cost was adopted from FSR /Ref-5/ which was approved by Ministry of Industry /Ref-11/. The breakdown of the cost has been transparently included in the IRR analysis spreadsheet /Ref-29/.</p> <p>To confirm the suitability of the investment cost, the project's investment unit cost (US/kW) was compared with other similar registered CDM projects in Vietnam. The result has been indicated in the table 4 below.</p> <p>The comparison shows that the investment unit cost of project activity is 1,521.5 US/kW (exchange rate 1 USD = 16,120 VND) which falls in within the range of those registered CDM projects (877.8÷1,724.9 US/kW). Therefore, the validation team concluded that the applied investment cost of project activity is plausible and appropriated at the time of investment decision.</p>



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Electricity tariff	VND/kWh	677	<p>The proposed project has not signed the Power Purchase Agreement (PPA) with EVN yet. However they got the Pre-PPA /Ref-31/ from EVN that estimated the tariff of the project would be in the range of 3.7 - 4.5 US cent/kWh following Decision 2014/QĐ-BCN dated 13/06/2007 /Ref-46/. The tariff rate of 677 VND/kWh (equivalent to 4.2 US cent/kWh with exchange rate 1 USD = 16,120 VND) applied to project activity was sourced from the approved FSR /Ref-5/ (following Decision No. 709/QĐ-NLĐK /Ref-27/) and also fallen into the range indicated in the pre-PPA.</p> <p>Moreover, the validation team also conducted the tariff comparison between project activity and other comparable registered CDM projects, the result in table 4 below shows that the tariff rate applied to project activities is between the range of 603 ÷ 902 VND/kWh, which indicates that the tariff assumed in project financial calculation to be reasonable and do not deviate with the standard tariff awarded to other hydropower projects in Viet Nam.</p> <p>Thus, the validation team concluded that the tariff applied by the project participant is conservative and appropriate.</p>
Natural resources royalties rate	%	2	By checking Circular No.05/2006/TT-BTC /Ref-28/ , the validation team confirms that the resource tax is legally regulated.
Natural resources royalties fee	VND/kWh	700	
Annual Operation & Maintenance (O&M) cost rate	%	0.5	<p>The assumption of O&M cost applied was taken from Government Decision No.709/QĐ-NLĐK dated 13/04/2004 /Ref-27/. According to the Decision, the hydropower plant which has capacity higher than 30MW, the O&M cost will be estimated at 0.5% of total investment cost.</p> <p>It has been further confirmed that the O&M cost of all comparable registered CDM project (in Table 4 below) are between 0.5 – 1% of total investment cost. Thus the 0.5% assumed in project activity is reasonable and conservative.</p>
Exchange rate	VND/USD	16,120	This information is published by the State bank of Vietnam on 18/04/2007 (http://www.sbv.gov.vn/wps/portal/vn)



VALIDATION REPORT



			The validation team has reviewed the exchange rate provided in the reference source and confirms that the assumed value is appropriate at the time of investment decision.
Exchange rate	VND/EUR	21,619.08	<p>This information is published by the State bank of Vietnam on 18/04/2007 (http://www.sbv.gov.vn/wps/portal/vn)</p> <p>The validation team has reviewed the exchange rate provided in the reference source and confirms that the assumed value is appropriate at the time of investment decision.</p>

Most of the financial parameters defined above are sourced from the FSR **/Ref-5/**, which is made by PECC1 – Power Engineering Consulting Joint Stock Company 1 (<http://www.pecc1.com.vn>) and approved by Ministry of Industry **/Ref-11/**. PECC1 is an authorized third party for making FSR of hydropower projects, consistently with Vietnamese regulation. By means of document checking, Validation team confirms that the FSR is made and approved compliantly.

The recent CDM registered hydropower projects with installed capacity within the range of 50 – 150 MW are considered similar and comparable with project activity. Based on the available information provided on UNFCCC website and CDM Pipeline website (<http://cd4cdm.org>) on 01/11/2012 **/Ref-48/**, the Table 4 below has been conducted to compare the key input values for similar projects to Project activity and to confirm the suitability of the input parameters used in the proposed project's investment analysis **/Ref-49/**.

Table 4: Comparison and analysis of key input values for similar projects

CDM ref	Project name	Registered date	Installed capacity (MW)	Operation time (hr)	Tariff (VND/kWh)	O&M cost (% of investment cost)	Unit cost (US/kW)
3711	Thai An Hydropower project	29/10/2010	82	4360	603	0.5%	1282.8
3872	Ngoi Phat Hydropower project	18/11/2010	72	4365	603	1%	1072.4
4537	DakRtih Hydropower project	08/06/2011	144	4402	607.98	0.5%	1347.1
4809	Song Con 2 Hydropower Project	11/11/2011	63	3294	642.13	0.5%	925.8



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5191	Van Chan Hydropower Project	18/11/2011	57	4498	732.998	0.5%	1120.4
4823	Ba Thuoc 2 Hydropower project	24/05/2011	80	3629	747	1%	1103.2
4974	Song Tranh 3 Hydropower Project	28/10/2011	62	3721	607	1%	1264.7
5115	Srepok 4 Hydropower project	22/08/2011	80	4204	685	0.5	1396.3
5144	Song Bung 5 Hydropower Project	16/03/2012	57	4041	714	1%	1276.9
5343	Nho Que 3 Hydropower Project	30/04/2012	110	4467	634.28	1%	1411.5
5870	Da M'Bri Hydropower project	21/03/12	75	4509	668	0.5%	1361.4
5911	Dong Nai 5 Hydropower Project	31/05/2012	150	4029	730	0.5%	1150.6
6184	Dak Drinh Hydropower Project	10/05/2012	125	4223	730	0.5%	1341.3
6489	Dak Mi 2 Hydropower Project	20/07/2012	98	4240	787.5	1%	1399.2
5885	Nam Na 2 Hydropower Project	20/08/2012	66	4056	718.1	1%	1208.9
6735	Hoi Xuan Hydropower Project	20/08/2012	102	4241	902	0.5%	1774.0
5445	Ta Thang Hydropower Project	10/09/2012	60	4087	640	1%	1002.2
Range			62 ÷ 150	3294 ÷ 4498	603 ÷ 902	0.5 ÷ 1%	925.8 ÷ 1774.0
Project activity			100	4428	677	0.5%	1331.8

Based on above justifications, Bureau Veritas Certification reviewed the IRR calculation **/Ref-29/** and found that it is correct and in accordance with "Tool for demonstration and assessment of additionality" Version



7.0.0 **[5]**. As it shows, without CDM revenue, the project IRR of the Project is 11.12%, which is lower than the benchmark (12.375%).

Complying with paragraph 112/VVM, Bureau Veritas Certification, based on the assessment result by the financial expert engaged, hereby confirms that the underlying assumptions are appropriate and the financial calculations are correct.

In the step of Sensitivity analysis, four financial indicators were identified with a variation range over + 10% for evaluation:

- 1) Net electricity generation to the national grid
- 2) Total investment costs
- 3) Annual O&M costs
- 4) Electricity tariff

An elaboration was presented in the PDD to show the variables range so as to the IRR of the Project could reach the benchmark. As it shows, when all of 04 indicators fluctuate within the range from -10% to +10%, the IRR will not reach the benchmark 12.375%. Furthermore, Bureau Veritas Certification analyzed the possibility of fluctuation beyond the range (+10%) for these indicators.

1) Net electricity generation to the national grid

In case of annual amount of Net electricity generation to the national grid increase 10%, Project IRR would be 12.18%, which is still lower than Benchmark of 12.375%.

To reach the benchmark 12.375%, annual amount of electricity generated to the national grid will increase 11.91%. According to the 44 years historical hydrology data (1960 – 2003) in Vietnam which has been provided during the site-visit, it is impossible to sustain 11.91% annual increase. Therefore, Validation team confirms that annual amount of electricity generated to the national grid would not increase over 10%.

2) Total investment costs

In case of Total investment costs reduce 10%; Project IRR would be 12.25%, which is still lower than Benchmark of 12.375%.

The investment costs should decrease 19.10% in order to reach 12.375% of benchmark. By verifying the average consumer prices from 2008 – 2012 **/Ref-30/** and considering the actual construction cost **/Ref-10/**, the validation team confirms that it is impossible for the investment costs to decrease over 10%.

3) Annual O&M costs

In case of Annual O&M costs reduce 10%; Project IRR would be 11.16%, which is still lower than Benchmark of 12.375%.



The IRR cannot reach the Benchmark even if the Annual O&M costs completely deducted (IRR is equal 11.519% in this case). Therefore, it is unlikely to happen because total O&M costs are approximately 0.5% of Total investment costs for hydropower project **/Ref-27/**.

4) Electricity tariff

In case of electricity price increase 10%, Project IRR would be 12.20%, which is still lower than Benchmark of 12.375%.

Electricity tariff would annually increase 11.67% for the reach of benchmark 12.375%. According to the Pre-Power Purchase Agreement **/Ref-31/** signed between Project owner and EVN which follows the Decision 2014/QD-BCN dated 13/06/2007 **/Ref-46/**, even the tariff applying for the project is maximum value as of 4.5 US cent/kWh (or 725.4 VND/kWh, equivalent to 7.15% increased), the IRR of the project would still be lower than benchmark. Therefore, Validation team confirms that the tariff of the Project is unlikely to increase by more than 10%.

As it shows, the IRR will remain below the benchmark of 12.375%. Bureau Veritas Certification reviewed the sensitivity analysis in the FSR **/Ref-5/** and confirmed that the indicators identified and the variation range employed in the PDD are consistent with the approved FSR. Validation team reproduced the calculation based on the IRR spreadsheet **/Ref-29/** and worked out the same outcomes as it shows.

3.7.4 Barrier analysis (118)

The step 3 **Barrier analysis** was not applied for the Project.

3.7.5 Common practice analysis (121)

According to Point 4.5.1 of the Tool for demonstration and assessment of additionality" Version 7.0.0 **[5]**, "Guidelines on Common practice" Version 02.0 **[9]** is used to demonstrate the Project additionality. As per paragraph 2 of the applied guidelines, the project activity falls in the type of "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies" and is applied the following steps:

Step 1:

As per paragraph 5 of the applied Guideline **[9]**, the applicable output range (+/-50%) of the capacity of the proposed 100 MW project activity is calculated as from 50 MW to 150 MW.

**Step 2 & Step 3:**

As per requirements from paragraph 6 and 7 of the applied Guideline [9], there are 07 (seven) projects identified as similar to the Project activity. These projects included: (1) Thac Ba, (2) Vinh Son, (3) Thac Mo, (4) Song Chinh, (5) Can Don, (6) Se San 3A and (7) Srokphu Mieng.

By checking the “Information on Power Plants connected to the national electricity grid” issued by the Institute of Energy in Aug 2008 /Ref-32/, information from each identified projects /Ref-33/ and from the UNFCCC website, the validation team confirms the similar projects are identified appropriately. Thus $N_{all} = 7$.

Step 4:

As per paragraph 8 of the applied Guideline [9], the technology differences are identified as follows:

- Projects number 1, 2, 3 and 4 were constructed before the issuance of Decree No.45/2001/ND-CP dated 02/08/2001 /Ref-34/. Before that time, all power plants have been invested from the state budget sources and operated by state owned companies. Moreover, these 4 plants were invested and operated with EVN as the largest shareholder (60%) /Ref-33/ while the project activity is invested by private entity of Vietnam Power Development J.S.C which only has 20% of shares by EVN /Ref-35/. This makes these 4 projects less primarily based on the direct financial merits compared with the project activity.
- Project number 5 is invested by the state owned company of Song Da Corporation as the first BOT (Build Operate and Transfer mechanism) hydropower project in Vietnam /Ref-36/. Therefore, this project received certain support mechanism from the government.
- Project number 6 is invested by the state budget under a preferable condition to access the loan (i.e. 85% of the total investment cost) /Ref-37/. Furthermore, this project owner is Song Da Corporation which is belonging to the Ministry of Construction and has substantial experiences in designing, investing, constructing and operating of large scale hydropower plants from 1990 from 2000 /Ref-38/. This is different from the Project Owner which only has the Project activity as large scale project /Ref-39/.
- Project number 7 was invested by Vietnam Urban and Industrial Zone Development Investment Corporation, a state-owned company belongs to Ministry of Construction /Ref-40/. It is receiving both preferential interest from state owned budget and a foreign loan from China Export-Import Bank /Ref-41/.

The validation team has reviewed the reference sources and concluded that these provided sources are valid and those statistics provided in Table B.5.4 of PDD Version 04 /Ref-2/ is correct. Based on the above justifications, the validation team confirms that the 07 (seven) identified hydropower projects have different technologies from the proposed



project according to the paragraph 4 (d) of the applied Guideline [9]. Hence $N_{diff} = 7$.

Step 5:

- The factor $F = 1 - N_{diff} / N_{all} = 1 - 7 / 7 = 0$ which is < 0.2 (common practice if greater than 0.2)
- Moreover, $N_{all} - N_{diff} = 7 - 7 = 0$ which is < 3 (common practice if greater than 3)

Complying with paragraph 119/VVM, based on above demonstration that in accordance with “Tool for demonstration and assessment of additionality” Version 7.0.0 [5] and supported by reliable data sources, the validation team hereby confirms that the proposed CDM project activity is not common practice.

3.8 Monitoring plan (124)

The Project uses the approved consolidated monitoring methodology ACM0002 Version 13.0.0 [3] for grid connected electricity generation from renewable sources.

Applicability of this methodology is justified in PDD as it involves grid connected renewable power generation using hydro power. Refer discussions on the validity of the methodology at **Section 3.5** above.

The CM emission factor is determined ex-ante based on the most recent information available. Accordingly the monitoring plan includes the following parameters:

- $EG_{facility,y}$: Net electricity supplied by the proposed hydropower plant to the national grid (MWh). This parameter is calculated from electricity meters.
- Cap_{PJ} : Installed capacity of the hydro power plant after the implementation of the project activity (W). This parameter will be determined based on recognized standards.
- A_{PJ} : Area of the reservoir measured in the surface of the water, after implementation of the project activity, when the reservoir is full (m^2). This parameter is monitored from topographical surveys, maps, satellite pictures.

According to ACM0002 Version 13.0.0 [3], no leakage need to be considered for the Project because no energy generating equipment is transferred from or to the site, thus $L_y = 0$



Operational management for the Project activity is comprehensively detailed in the PDD and this includes description of the responsibility, training, procedure reference, equipment details, calibration frequency maintenance needs are clearly mentioned. Archiving of the records was indicated and Validation team is of opinion that the retrievability of the CDM project activity records is pro-actively considered satisfactorily.

Meters systems of the Project include: Main meter system (M1) and Back-up meter system (M2). Validation team confirms that the data from these meters is properly taken into account. And in case of emergency where not sufficient electricity for power house, the Project will import electricity from grid via this connection. Both the electricity exported and imported by the Project will be continuously measured and recorded on a monthly basis, and doubled checked by receipts.

Accuracy class of main and backup meters above are no less than 0.2s and 0.5s, respectively **/Ref-42/**. They are subjected to periodic calibration by authorized third parties in accordance with relevant regulation **/Ref-43/**. The area of the reservoir measured in the surface of the water will be calculated based on relevant maps by supplied party after the implementation of the Project activity when the reservoir is full; the installed capacity of the Project will be checked by the nameplate of the generators.

Monitoring of sustainable development indicators is not required for such Projects in Vietnam in the light of minor environmental impacts.

Complying with paragraph 122/VVM, Bureau Veritas Certification hereby confirms that the Project participants are able to implement monitoring plan.

3.9 Sustainable development (127)

The host Party's DNA confirmed the contribution of the project to the sustainable development of the host Party. Refer to **Section 3.1** of this report.

3.10 Local stakeholder consultation (130)

The steps to invite local stakeholder consultation were implemented accordingly with the regulation on development of CDM projects in Vietnam.

Local stakeholders were invited to join the official meeting with project owner to provide comments on 03/07/2007. During the meeting, social-economic and environmental impacts of the project were demonstrated to



local stakeholders including: representatives of communes' people councils, committees and villages **/Ref-15/**. Subsequently, other meetings were held internally in local communes.

In Jul 2008, the proposed project was informed to DNA Vietnam and requested to be supported to develop by People Provincial Committee of Nghe An **/Ref-20/**. Besides, the People Provincial Committee had approved the general plan for compensation and resettlement of the Project **/Ref-44/**.

The survey showed that the proposed project would impact positively to social-economic, environmental protection. The proposed project would be strongly supported by local people. Validation team conducted interview the local stakeholders during on-site visit of the validation process and received consistent responses.

Complying with paragraph 130/VVM, Bureau Veritas Certification hereby confirms that the project participant has appropriately implemented necessary and appropriate measures.

The stakeholders also confirmed the process of invitation as described in the PDD. The validation team hereby confirms that the process of local stakeholder consultation is observed to be adequate.

3.11 Environmental impacts (133)

The validation team ensured that the Environmental Impact Assessment Report was carried out in July 2006 and approved by Nghe An Province People Committee on 13/09/2006 **/Ref-6/; /Ref-7/**.

The environmental impact results from the Project have been identified and analyzed in the PDD. By means of checking EIA report and approval, Validation team is able to ensure that the environmental impacts occur mainly during the construction time due to waste water, dust, exhaust gases, noise pollution and solid waste. All above impacts would be within an acceptable limit by carrying out corresponding mitigation measures as per statement of the EIA.

Complying with paragraph 131/VVM, Bureau Veritas Certification hereby confirms environmental impacts of the Project (for construction and operation stage) were assessed approved legally.



4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD using methodology ACM0002 Version 13.0.0 [3] was web hosted on the UNFCCC for global stakeholders' comments as per CDM requirements. The project was web-hosted from 17/02/2011 to 18/03/2011.

Comments were received from **01** person. The project participant provided response to these comments. Validation team took due account of these comments and the respective responses while making the validation opinion. The details of the comments received, responses by the project participants and the explanation of how due account of these is taken by the validation team are attached as **Appendix B** with this validation report.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Khe Bo Hydropower project in Vietnam. The validation was performed on the basis of UNFCCC 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; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participants used the latest "Tool for Demonstration and Assessment of Additionality" Version 7.0.0 [5] and "Guidelines on the demonstration and assessment of prior consideration of the CDM" Version 04 [6] to demonstrate the additionality of the Project. In line with this tool, the PDD provides analysis of investment barriers to determine that the project activity itself is not the baseline scenario.

By synthetic description of the project, the project is likely to result in reductions of GHG emissions partially. An analysis of the financial 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 of 2,424,160 tCO₂e over chosen 10-year fixed crediting period.



The review of the PDD (Version 04) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies the baseline and monitoring methodology ACM0002 Version 13.0.0 [3] and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Bureau Veritas Certification thus requests registration of “Khe Bo Hydropower Project” as CDM project activity.

6 REFERENCES

Category 1 Documents:

Documents provided by Type the name of the company that relates directly to the GHG components of the PoA.

- /Ref-1/** GSC PDD Version 01 – date 14th February 2011
- /Ref-2/** Final PDD Version 04 – date 11th December 2012
- /Ref-3/** Vietnam LoA (No: 03/2012/DMHCC-BCD) – date 31st January 2012
- /Ref-4/** First Feasibility Study Report by Project Owner – date 20th October 2005
- /Ref-5/** Revised Feasibility Study Report (FSR) by PECC1 – date 22nd February 2007
- /Ref-6/** Environmental Impact Assessment (EIA) by Hydropower Management Board 2 – date 30th July 2006
- /Ref-7/** Approval of EIA by Nghe An Province People Committee – date 13th September 2006
- /Ref-8/** Equipment Supply Contract (between Project Owner and Equipment Consortium Contractor YMEC - ZHEFU - EEMC) – date 18th April 2009
- /Ref-9/** Official Letter No. 109/KTTVBKDH by Vietnam DNA (about Calculation emission factor of Vietnamese Electricity Grid) – date 26th March 2010
- /Ref-10/** Major construction contract (between Project Owner and Constructor) – date 05th October 2007
- /Ref-11/** Approval of FSR by Ministry of Industry – date 02nd April 2007
- /Ref-12/** Meeting minute between Project Owner and CERtech Environment Inc. – date 18th January 2007
- /Ref-13/** Meeting minute of Management Board – date 12th April 2007
- /Ref-14/** Decision of Management Board to develop the Project as CDM project – date 18th April 2007
- /Ref-15/** Meeting minutes between Project Owner and Local Stakeholders – date 03rd July 2007
- /Ref-16/** Investment License for the Project by Nghe An Province People Committee – dated 08th August 2007
- /Ref-17/** Consultancy Agreement between Project Owner and CERtech Environment Inc. – date 12th September 2007
- /Ref-18/** Emission Reductions Purchase Agreement (ERPA) between Project Owner and CerTech Environment Inc. – dated 08th November 2007



- /Ref-19/** Bank Loan Agreement – date 08th March 2008
- /Ref-20/** Official letter from Nghe An Province People Committee to Vietnam DNA – date 31st July 2008
- /Ref-21/** Project Idea Note (PIN) Approval Letter by Vietnam DNA – date 17th March 2009
- /Ref-22/** CDM development agreement between Gazprom Marketing & Trading Singapore Pte. Ltd. and Enecore Carbon Limited – date 22nd January 2010
- /Ref-23/** ERPA signed between Project owner and Gazprom Marketing & Trading Singapore Pte. Ltd. – date 25th February 2010
- /Ref-24/** Decision No.632/QD-NHNN by State Bank of Vietnam – date 29th March 2007
- /Ref-25/** Civil Law No.33/2005/QH11 by Vietnamese Parliament – date 14th June 2005
- /Ref-26/** IMF Country Report No. 07/386 (2007 International Monetary Fund) – date December 2007 (<http://www.imf.org/external/pubs/ft/scr/2007/cr07386.pdf>)
- /Ref-27/** Decision No.709/QD-BCN by Ministry of Industry – date 13th April 2004
- /Ref-28/** Circular No.05/2006/TT-BTC by Ministry of Finance – date 19th January 2006
- /Ref-29/** Financial (IRR) calculation sheet
- /Ref-30/** The inflation and average consumer prices from 2008 - 2012
(<http://www.imf.org/external/pubs/ft/weo/2008/02/weodata/weoreptc.aspx?sy=1980&ey=2013&scsm=1&ssd=1&sort=country&ds=.&br=1&c=582&s=PCPIPCH&grp=0&a=&pr1.x=77&pr1.y=10>)
- /Ref-31/** Pre Power Purchase Agreement (Pre-PPA)– date 12th October 2007
- /Ref-32/** Information on Power Plants connected to the national electricity grid issued by the Institute of Energy in Aug 2008
- /Ref-33/**
- Project (1) Thac Ba
(<http://www.thacba.evn.com.vn/CategoryPages/2/121/Lich-su-phat-trien.aspx>)
 - Project (2) Vinh Son
(<http://www.vinacorp.vn/stock/hose-vsh/thuy-dien-vinh-son-sh>)
 - Project (3) Thac Mo
(<http://www.tmhpp.com.vn/Home/Detail/tabid/84/ItemId/781/View/2/Cateld/40/language/vi-VN/Default.aspx>)
 - Project (4) Song Hinh
(<http://www.vinacorp.vn/stock/hose-vsh/thuy-dien-vinh-son-sh>)
 - Project (5) Can Don
(<http://www.sudicosd.com.vn/news.aspx?cate0=478&cate1=495&id=338>)
 - Project (6) Se San 3A
(http://thuvienphapluat.vn/arc_hive/Quyet-dinh/Quyet-dinh-898-QD-TTg-dau-tu-Du-an-thuy-dien-Se-San-3A-vb17481t17.aspx)
 - Project (7) Srokphu Mieng
(<http://www.idico-udico.com.vn/partners/en/detail/Vietnam-Urban-and-Industrial-Zone-Development-Investment-Corporation--IDICO-/20090929/2.html>)



- /Ref-34/** Decree No.45/2001/ND-CP dated 02/08/2001
- /Ref-35/** Viet Nam Power Development Joint Stock Company's Business License
- /Ref-36/** First BOT hydropower project in Vietnam
(<http://vietbao.vn/Kinh-te/Du-an-BOT-dau-tien-cua-nganh-thuy-dien/10741209/87>)
- /Ref-37/** Investment cost of Se San 3A Hydropower Project
(http://www.kiemtoannn.gov.vn/website/db_images/documents/20.%20Du%20an%20thuy%20dien%20Se%20san%203A.doc)
- /Ref-38/** Song Da Corporation
(<http://www.songda.vn/info/en>)
- /Ref-39/** Viet Nam Power Development Joint Stock Company
(<http://vnpd.com.vn/index.php/dau-tu-phat-trien>)
- /Ref-40/** Vietnam Urban and Industrial Zone Development Investment Corporation
(<http://www.sggp.org.vn/thongtincanuoc/nam2005/thang12/82144>)
- /Ref-41/** Official Letter No.4846/VPCP-KTTH – date 13th September 2004
(<http://www.vanbanphapluat.com/danh-muc-van-ban-phap-luat.html?view=doc&id=50989>)
- /Ref-42/** Decision No.02/2007/QD-BCN by Ministry of Industry – date 09th January 2007
- /Ref-43/** Decision No.25/2007/QD-BKHCMNT by Ministry of Science, Technology and Environment – date 05th October 2007
- /Ref-44/** Compensation expenditure for Khe Bo Hydropower Project – date 27th May 2008
- /Ref-45/** Contract termination document between Project owner and Gazprom Marketing & Trading Singapore Pte. Ltd. – date 20th November 2012
- /Ref-46/** Decision No.2014/QD-BCN – date 13th June 2007
- /Ref-47/** Official letter for Plan Load Factor calculation by PEEC1 – date 06th December 2012
- /Ref-48/** The CDM Pipeline information sheet – date 01st November 2012
- /Ref-49/** The comparison sheet of key input values for similar registered CDM projects.

**Category 2 Documents:**

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

- [1] Project Design Document Form (CDM-PDD) – Version 03.2, EB 25, Annex 15
- [2] Guidelines for completing the Project Design document (CDM-PDD) – Version 07, EB 41, Annex 12
- [3] ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources – Version 13.0.0, EB 67, Annex 13
- [4] Tool for the demonstration and assessment of additionality – Version 7.0.0, EB 70, Annex 8
- [5] Tool to calculate the emission factor for an electricity system – Version 2.2.1, EB 63, Annex 19
- [6] Guidelines on the demonstration and assessment of prior consideration of the CDM – Version 04, EB 62, Annex 13
- [7] Glossary of CDM terms – Version 07, EB 70, Annex 7
- [8] Guidelines on the assessment of investment analysis – Version 05, EB 62, Annex 5
- [9] Guidelines on Common Practice – Version 02.0, EB 69, Annex 8
- [10] Guidelines for the reporting and validation of Plant Load Factor", version 01, EB48

Persons interviewed:

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

- /1/ Mr. Jerry Qian, Consultant
- /2/ Mr. Nguyen Thanh Quang, Consultant
- /3/ Mr. Nguyen Anh Hung, Director of Vietnam Power Development J.S.C
- /4/ Mr. Nguyen Huu Thai Hoang, Vice Director of Vietnam Power Development J.S.C
- /5/ Mr. Phan The Chuyen, Project Manager of Vietnam Power Development J.S.C
- /6/ Mr. Ho Viet Son, Local People
- /7/ Mr. Luong Van Vien, Local people
- /8/ Mr. Quang Van Xuan, Local people
- /9/ Mr. Lo Xuan Tien, Local People
- /10/ Mr. Jiang Jun, Representative of Equipment supplier

7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Include CV of Team Leader, Team Members, Experts, Internal technical Reviewer

Mr. Tran Viet Hoang	Team Leader, CDM Lead verifier	He has been working in Bureau Veritas Certification for 2 year as Lead Auditor of ISO 9001; ISO 14001; OHSAS 18001. He has attended training courses and obtained certificate of CDM lead verifier and ISO 14064 for Greenhouse Gases Accounting. He has involved in 35 CDM projects validation / verification activities.
Mr. Ram M. Desai	Team Member, CDM Lead Verifier	Environmental Engineer with over all 13 years of experience in various industries related to Water & Waste water engineering design, installation & Commissioning, Integrated Facility Management for Environmental Services operations in various industries i.e. Automotive, Pharmaceutical, IT & Electronics (With Clean Room). Management System Implementation and Maintenance, Green Building concept implementation, Lean Management Implementation, Water & Waste Water engineering Design & project Management, Project Environmental Compliance etc. for a construction company. He is the lead auditor for Environment management system, Quality management system and Occupational health and safety management system and his auditing experience spans for 3 year with BVCI & BVCS. He has undergone intensive training on Clean Development Mechanism and was trained as Lead Verifier for CDM in the year 2005 and working as a lead Verifier for validation and verification of CDM/VCS projects
Mr. Nguyen Hong Linh	Team Member, CDM Lead Verifier	He has graduated in Environmental Studies and had a Master Degree of Quality Management. He has undergone intensive training on Clean Development Mechanism. His working experience includes more than 5 years of auditing works in the field of Quality Management System and Environmental Management System. He has been involved in the validation and verification work of more than 15 CDM projects.
Mr. Sushil Budhia	Financial expert	He has been practicing as Chartered Accountant for 25 years and he has very wide experience on project finance, taxation and financial auditing. He has undergone training on Clean Development Mechanism and has conducted verification of financial indicators like IRR for more than 70 CDM projects.
Dr. Ashok Mammen	Technical Reviewer	He has PhD (Oils & Lubricants), Masters (Analytical chemistry). He has over 20 years of experience in petrochemical sector. Dr. Mammen is a lead auditor and tutor for environment, safety and quality management systems and a CDM lead verifier and lead tutor for GHG projects. He has been involved in the validation and verification processes of more than 100 CDM, JI and other GHG projects.



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APPENDIX A: VALIDATION PROTOCOL

Table 1 Validation requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2) and methodology ACM0002 (Version 13.0.0 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”)

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
1. Approval			COUNTRY A (Vietnam)	N/A		
a. Have all Parties involved approved the project activity?	VVM	44	CAR-1 was issued CAR-1: _____ The Letter of Approval from Vietnam is not available in this stage of validation.	CAR-2 was issued CAR-2: _____ The Letter of Approval from United Kingdom is not available in this stage of validation.	GAR-1 GAR-2	OK
b. Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval? (If yes, provide the reference of the letter of approval, any supporting documentation, and specify if the letter was received from the project participant or directly from the DNA)	VVM	45	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
c. Does the letter of approval from DNA of each Party involved:	VVM	45				
i. confirm that the Party is a Party of the Kyoto Protocol?	VVM	45.a	Vietnam has ratified the Kyoto Protocol on 25 th Sep 2002	United Kingdom has ratified the Kyoto Protocol on 31 st May 2002	OK	OK
ii. confirm that participation is voluntary?	VVM	45.b	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
iii. confirm that, in the case of the host Party, the proposed CDM project activity contributes to	VVM	45.c	Pending on close CAR-1	Pending on close CAR-2	Pending	OK



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the sustainable development of the country?						
iv. Refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	VVM	45.d	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
d. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	No, it is conditional in Vietnam	No, it is conditional in United Kingdom	OK	OK
e. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and is valid for the CDM project activity under validation?	VVM	47	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
f. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
g. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
2. Participation			PP1 (Vietnam Power Development Joint Stock Company)	N/A		
a. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes	Yes	OK	OK
b. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
c. Are the project participants listed in tabular form in section A.3 of the PDD?	VVM	52	Yes, relevant sections in the PDD have been checked. No deviation has been found.		OK	OK
d. Is the information in section A.3 consistent with the contact details provided in annex 1 of the PDD?	VVM	52	Yes	Yes	OK	OK
e. Has the participation of each of the project participants been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve	VVM	52	Yes	Yes	OK	OK



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participation? (Provide reference of the approval document for each of the project participants)						
f. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	No		OK	OK
g. Has the approval of participation issued from the relevant DNA?	VVM	53	Pending on close CAR-1	Pending on close CAR-2	OK	OK
h. Is there doubt with respect to (g) above?	VVM	53	Pending on close CAR-1	Pending on close CAR-2	OK	OK
i. If yes, was verified with the DNA that the approval of participation is valid for the proposed CDM project participant?	VVM	53	Pending on close CAR-1	Pending on close CAR-2	OK	OK
3. Project design document						
a. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	Yes, the latest version of the PDD template has been used. This has been cross – checked with the format provided in the UNFCCC website		OK	OK
b. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	Yes		OK	OK
c. In CDM-PDD section A.1 are the following provided?	EB 41	Ann 12				
i. Title of project	EB 41	Ann 12	Yes, title of project has been addressed sufficiently as Khe Bo hydropower Project		OK	OK
ii. Current version number and date of document	EB 41	Ann 12	Version of PDD (Version 04) and date of that (21/11/2012) were addressed adequately		OK	OK
d. In CDM-PDD section A.2 are following provided (max. one page)?	EB 41	Ann 12			OK	OK



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i. A brief description of the project activity covering purpose which includes the scenario existing prior to the start of project, present scenario and baseline scenario	EB 41	Ann 12	<p>Yes, in the section A.2, the scenario existing prior to the implementation of the proposed project activity has been described. It has been also considered as baseline scenario</p> <p>The purpose of the proposed project activity is to utilize the waters of the Ca river in order to generate about 436,158 MWh (net) of hydro-electric per year, which will be exported to the Vietnamese Electricity grid. The baseline scenario is the same as the scenario existing before the implementation of the proposed project</p> <p>CAR-3 was issued</p> <p>CAR-3: In the section A.2, PDD Version 1.0 states that the Project satisfies the sustainability, additionality and feasibility criteria (with supporting sources). However, by accessing provided source, Validation team cannot find information to substantiate the statement</p>	CAR-3	OK
ii. Explanation on how the GHG emission reductions are effected	EB 41	Ann 12	Yes. The Project is to utilize the hydropower resource for power generation which will be supplied to Vietnam national electricity grid and displace the power from fossil fuel fired power plants	OK	OK
iii. The PP's views on the contribution of project activity to sustainable development	EB 41	Ann 12	Yes. The contribution to sustainable development is included in section A2 of the PDD. Validation team checked and confirmed by document checking (FSR. EIA)	OK	OK
iv. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12			



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e. In CDM-PDD section A.3 are following provided in the tabular format?	EB 41	Ann 12		OK	OK
i. List of project participants and parties	EB 41	Ann 12	Yes. The private entities involved in the project activity are sufficiently listed at section A3 of the PDD.	OK	OK
ii. Identification of Host Party			Host Party (Vietnam): Vietnam Power Development Joint Stock Company (VPD-JSC)	OK	OK
iii. Indication whether the Party wishes to be considered as project participant	EB 41	Ann 12	All Parties do not wish to be considered as Project Participant	OK	OK
f. In CDM-PDD section A.4.1 are following provided?	EB 41	Ann 12		OK	OK
i. Technical description, location, host party(ies) and address as required	EB 41	Ann 12	Yes. Tan Quang Commune, Tuong Duong District, Nghe An Province, Vietnam	OK	OK
ii. Detailed physical location with unique identification of the project activity (eg. Longitude/latitude) – not to exceed one page	EB 41	Ann 12	Yes. Longitude and latitude are provided. The geographical coordinates of Longitude: 104°41'00" East Latitude: 19°08'00" North	OK	OK
iii. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12			
g. In CDM-PDD section A.4.2 is the list of categories of project activities provided?	EB 41	Ann 12	Category of project activities has been provided in relevant section: Sectoral scope 1: Energy Industries (Renewable / Non – renewable sources)	OK	OK
h. In CDM-PDD section A.4.3 are following provided?	EB 41	Ann 12		OK	OK
i. A description of how environmentally safe and	EB 41	Ann 12	Yes. The turbines are manufactured in China and	CAR-5	OK



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<p>sound technology, and know-hoe, is transferred to the Host Party(ies)</p>			<p>imported to Vietnam. They satisfied Vietnamese standard.</p> <p>CAR-5, CAR-6 and CL-1 were issued</p> <p>CAR-5: In the description of the Project activity of the PDD, Version 01 the Project is a run-of river reservoir hydropower plant that involves a forebay. However, during checking on-site, Validation team confirm that the Project activity is an accumulation reservoir hydropower plant without a forebay.</p> <p>CAR-6: In the table A.4.1, section A.4.3, PDD Version 1.0, lifetime of turbines and generators were defined as 34 years and 30 years, respectively. However, operational lifetime is defined as 40 years</p> <p>CL-1: In the section A.4.3 of the PDD Version 1.0, the Project will connect to local grid through Ban Ve – Vinh 220kV line with a distance of 3.5km. However, by checking technical documents, Validation team found that the distance of the transmission line is 3.75km</p>	<p>CAR-6 CL-1</p>	
<p>ii. Explanation of purpose of project activity with scenario existing prior to the start of project, scope or present activities and the baseline scenario</p>	<p>EB 41</p>	<p>Ann 12</p>	<p>The project is a newly built hydro electric power plant The baseline scenario is the scenario existing prior to the implementation of the proposed project activity Presently, prior to the implementation of the proposed project activity would have been generated by the operation of grid – connected power plants and by the addition of other new generation sources</p> <p>Pending on close CAR-5, CAR-6</p>	<p>Pending</p>	<p>OK</p>



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iii. List and arrangement of the main manufacturing/production technologies, systems and equipments involved	EB 41	Ann 12	Refer the specification listed in Table A.4.1 in the section A.4.3 of the PDD	OK	OK
iv. The emissions sources and GHGs involved	EB 41	Ann 12	Yes, the project is to reduce greenhouse gas emissions of CO2 produced in Vietnamese national electricity grid	OK	OK
v. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	<ul style="list-style-type: none"> - The Project is defined as a newly built Accumulation reservoir hydropower plant instead of run-of-reservoir hydropower plant as in Version 01 - The power generation will be exported to the local grid through 220 kV line - Lifetime of Turbines and Generators were added 	OK	OK
i. In CDM-PDD section A.4.4 is the estimation of emission reductions provided as requested in a tabular format?	EB 41	Ann 12	Renewable crediting periods were chosen: Approximate emission reductions are provided. Annual emission reductions of 242,416 tonnes CO ₂ e are estimated for the first crediting period	OK	OK
j. In CDM-PDD section A.4.5 is Information regarding Public funding provided?	EB 41	Ann 12	Yes. Information provided: no public funding from Annex I parties is involved of this project	OK	OK
k. In CDM-PDD section B.1 are following provided?	EB 41	Ann 12			



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i. The approved methodology and version number	EB 41	Ann 12	<p>In the PDD for public comments, the applied methodology is ACM0002, "Consolidated baseline methodology for grid – connected electricity generation from renewable sources", Version 13.</p> <p>CAR-7 was issued</p> <p>CAR-7: The Project applies the methodology ACM0002, Version 12.1.0. However:</p> <p>– In the B.2 section, source number 9, section B.6.1, section B.6.2, PDD Version 1.0, version of methodology ACM0002 is 12</p> <p>– In the table B.3.1, methodology is ACM002, Version 12</p>	GAR-7	OK
ii. Any methodologies or tools which the above approved methodology draws upon and their version number	EB 41	Ann 12	<p>Yes. Below tools were used:</p> <ul style="list-style-type: none"> - Tool to calculate the emission factor for an electricity system (Version 2.2.1) - Tool for the demonstration and assessment of additionality (Version 7.0.0) 	OK	OK
I. In CDM-PDD section B.2 are following provided?	EB 41	Ann 12			
i. Justification of the choice of methodology that the project activity meets each of the applicability conditions	EB 41	Ann 12	Yes	OK	OK
ii. Documentations with references that had been used. This can be provided in Annex 3 instead	EB 41	Ann 12	Yes	OK	OK
m. In CDM-PDD section B.3 are following provided?	EB 41	Ann 12		OK	OK
i. Description of all sources and gases included in the project boundary in the table	EB 41	Ann 12	<p>Yes. Only emission of CO₂ is considered</p> <p>Pending on close CAR-7</p>	Pending	OK



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ii. A flow diagram of the project boundary physically delineating the project activity	EB 41	Ann 12	Yes	OK	OK
iii. The flow diagram with all equipments, systems and flows of mass and energy etc	EB 41	Ann 12	Yes	OK	OK
n. In CDM-PDD section B.4 are following provided?	EB 41	Ann 12		OK	OK
i. Explanation how the most plausible baseline scenario is identified in accordance with the selected baseline methodology	EB 41	Ann 12	Yes. Baseline scenarios are identified plausible with ACM0002, Version 13.0.0	OK	OK
ii. Justification of key assumptions and rationales	EB 41	Ann 12	No	OK	OK
iii. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources, etc.)	EB 41	Ann 12	Yes CAR-8 was issued CAR-8: In the table B.4.1, section B.4, PDD Version 1.0, the applied values are not in international standard format	CAR-8	OK
iv. A transparent and detailed description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity	EB 41	Ann 12	Yes	OK	OK
v. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	Applied value to define Emission Factor were written in international standard format	OK	OK
o. In CDM-PDD section B.5 are following provided?	EB 41	Ann 12		OK	OK
i. Explanation of how and why this project activity is additional and therefore not the baseline scenario in accordance with the selected baseline methodology	EB 41	Ann 12	Yes. Investment analysis is used for demonstration of the additionality	OK	OK



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ii. Justification of key assumptions and rationales	EB 41	Ann 12	All indicators are from FSR, decision on approving invest, legislation. By document checking, validation team can confirm all source data are correct	OK	OK
iii. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources etc)	EB 41	Ann 12	Yes	OK	OK
iv. Evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, if the starting date of the project activity is before the date of validation	EB 41	Ann 12	By considering the definition indicated in the CDM Glossary of terms, the starting date is the date of first major construction contract signed (05/10/2007). Thus, the starting date is prior to the date of validation.	OK	OK
p. In CDM-PDD section B.6.1 are following provided?	EB 41	Ann 12		OK	OK
i. Explanation as to how the procedures, in the approved methodology to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity	EB 41	Ann 12	Complying with ACM0002, the "Tool to calculate the emission factor for an electricity system", Version 02.2.1 is used		
ii. Equations used in calculating emission reductions	EB 41	Ann 12	Yes $ER_y = BE_y - PE_y - LE_y$	OK	OK



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iii. Explanation and justification for all relevant methodological choices, including different scenarios or cases, options and default values	EB 41	Ann 12	<p>Yes. As per the ACM0002, Version 13, leakage emission of this project is not considered. In the PDD, these emissions sources are neglected. The steps and equations applied are consistent with the "Tool to calculate the emission factor for an electricity system", Version 2.2.1 and ACM0002, Version 13</p> <p>CAR-9 was issued</p> <p>CAR-9: In the description of the Project activity, the reservoir surface at full level is 9.6 km². However, during calculation of Power Density in the section B.6.1, this parameter is 9.5 km².</p>	GAR-9	OK
q. In CDM-PDD section B.6.2 are following provided?	EB 41	Ann 12		OK	OK
i. A compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remains fixed throughout the crediting period AND that are available when validation is undertaken	EB 41	Ann 12	<p>Yes.</p> <p>Accordance with "Calculation emission factor of Vietnamese Electricity Grid", the necessary official data of power grid published by DNA of Vietnam are available and determined during validation stage</p>	OK	OK
ii. The actual value period	EB 41	Ann 12	<p>Simple Operating Margin Emission Factor for the Vietnamese national electricity grid</p> <ul style="list-style-type: none"> * $EF_{grid,OM\ simple,y} = 0.6241$ (tCO₂/MWh) * $EF_{grid,BM,y} = 0.4876$ (tCO₂/MWh) * $EF_{grid,CM,y} = 0.5558$ (tCO₂/MWh) <p>Pending on close CAR-8</p>	Pending	OK



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iii. Explanation and justification for the choice of the source of data	EB 41	Ann 12	The official data "Calculation emission factor of Vietnamese Electricity Grid" were based on the data of Reports of Power Plants in Vietnamese Power System in July 2009, Emission Factor of CO2 pursuant to IPCC	OK	OK
iv. Clear and transparent references or additional documentation in Annex 3	EB 41	Ann 12	Yes	OK	OK
v. Where values have been measured, a description of the measurement methods and procedures (e.g. which standards have been used), indicated the responsible person/entity having undertaken the measurement, the date of measurement(s) and the measurement results	EB 41	Ann 12	It is not applicable in this case as the emission factor is determined ex-ante as per the options in ACM0002	OK	OK
r. In CDM-PDD section B.6.3 are following provided?	EB 41	Ann 12		OK	OK
i. A transparent <i>ex ante</i> calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology	EB 41	Ann 12	Yes. The calculation process is in line with the steps taken prescribed in the "Calculation emission factor of Vietnamese Electricity Grid" and addressed in the section B.6.3 of the PDD and Annex 3	OK	OK
ii. Documentation how each equation is applied, in a manner that enables the reader to reproduce the calculation	EB 41	Ann 12	Yes. The emission reductions calculation spreadsheet have been provided and checked by validation team	OK	OK
iii. Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets)	EB 41	Ann 12	Yes	OK	OK
s. In CDM-PDD section B.6.4 are the results of the <i>ex ante</i> estimation of emission reductions for all	EB 41	Ann 12	Yes. Data of emission reductions estimated from 2013 to 2023	OK	OK



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years of the crediting period, provided in a tabular format?					
t. In CDM-PDD section B.7.1 are following provided?	EB 41	Ann 12		OK	OK
i. Specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity	EB 41	Ann 12	Yes. EG _{ex,y} : Electricity supplied by the proposed project to the national grid	OK	OK
ii. For each parameter the following below information, using the table provided:	EB 41	Ann 12		OK	OK
a. The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred.	EB 41	Ann 12	Not applicable because no other outside sources of data should be used	-	-
b. Where data or parameters are supposed to be measured, specify the measurement methods and procedures, including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person/entity that should undertake the measurements and what is the measurement interval; (i) A description of the QA/QC procedures (if any) that should be applied; (ii) Where	EB 41	Ann 12	Digital meters will be installed at the connecting point. Data from meters will be monthly recorded including electricity imported and exported.	OK	OK



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relevant: any further comment. Provide any relevant further background documentation in Annex 4.					
u. In CDM-PDD section B.7.2 are following provided?	EB 41	Ann 12		OK	OK
i. A detailed description of the monitoring plan	EB 41	Ann 12	Yes, a procedure for monitoring emission reduction was provided. In this, training, monitoring, reporting activities were described. Besides, responding plan for emergency cases were also addressed. Responsibilities were appropriately determined	OK	OK
ii. The operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity	EB 41	Ann 12	Yes. CDM monitoring responsibilities with clear positions, responsibilities and routines of report are sufficiently provided	OK	OK
iii. The responsibilities for and institutional arrangements for data collection and archiving	EB 41	Ann 12	Yes	OK	OK
iv. Indication that the monitoring plan reflect good monitoring practice appropriate to the type of project activity	EB 41	Ann 12	Information given in the PDD is sufficient that arrangements can be properly implemented. During interview, it was confirmed that procedures as described roughly in the PDD will be implemented. CAR-10 was issued CAR-10: In the PDD Version 1.0, section B.7.2, clause 2.2, the main meter is M11 and the backup meter is M12. However, in clause 2.8 the main meter is M12, the backup meter is M11.	CAR-10	OK
v. Relevant further background information in Annex 4	EB 41	Ann 12	Yes. Detail description for monitoring information, monitoring organization, calibration requirement, emergency response procedure and training activities are sufficiently provided	OK	OK



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v. In CDM-PDD section B.8 are following provided?	EB 41	Ann 12		OK	OK
i. Date of completion of the application of the methodology to the project activity study in DD/MM/YYYY	EB 41	Ann 12	Date of completion of the baseline study was determined 14 th February 2011	OK	OK
ii. Contact information of the person(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity	EB 41	Ann 12	Yes, Enecore Carbon Limited is responsible for the application. Enecore Carbon Limited is not a project participant	OK	OK
iii. Indication if the person/entity is also a project participant listed in Annex 1	EB 41	Ann 12	N/A	-	-
w. In CDM-PDD section C.1.1 are following provided?	EB 41	Ann 12		OK	OK
i. The starting date of a CDM project activity, which is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (EB33, Para 76/CDM Glossary of terms/EB41, Para 67)	EB 41	Ann 12	Yes. The starting date is the actual date of preliminary contract for construction of dam, intake was signed	OK	OK
ii. A description of how this start date has been determined, and a description of the evidence available to support this start date	EB 41	Ann 12	By checking on – site and reviewing document, validation team confirms that the starting date was properly chosen	OK	OK
iii. If this starting date is earlier than the date of publication of the CDM-PDD for global stakeholder consultation by a DOE, description in Section B.5 contain a of how the benefits of the CDM were seriously considered prior to the starting date (EB41, Para 68).	EB 41	Ann 12	Yes. Management board of project owner considered the benefits of CDM then held a meeting with CDM consultant. Thus, a decision for developing the Project as CDM project was made on 18 th April 2007 (prior to date of publication of PDD – 17 th Feb 2011). By document checking and interviewing, BV validation team confirm that the evidences substantiated appropriately the CDM consideration http://cdm.unfccc.int/Projects/Validation/DB/6L40S3MWC7CQ9H44OTD0TLRUXP8XB6/view.html	OK	OK



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x. In CDM-PDD section C.1.2 is the expected operational lifetime of the project activity in years and months provided?	EB 41	Ann 12	Yes. Operational lifetime of the Project is expected in 40 years	OK	OK
y. In CDM-PDD section C.2 is it stated whether the project activity will use a renewable or a fixed crediting period and is C.2.1 or C.2.2 completed accordingly?	EB 41	Ann 12	Yes. Fixed crediting period will be applied	OK	OK
z. In CDM-PDD section C.2.1 is it indicated that each crediting period shall be at most 7 years and may be renewed at most two times, provided that, for each renewal, a designated operational entity determines and informs the Executive Board that the original project baseline is still valid or has been updated taking account of new data where applicable?	EB 41	Ann 12	Yes. 10 years	OK	OK
aa. In CDM-PDD section C.2.1.1 are dates in the following format: (DD/MM/YYYY) provided?	EB 41	Ann 12	Not applicable	-	-
bb. In CDM-PDD section C.2.1.2 is the length of the first crediting period in years and months provided?	EB 41	Ann 12	Not applicable	-	-
cc. In CDM-PDD section C.2.2 is the fixed crediting period at most ten (10) years provided?	EB 41	Ann 12	Yes	OK	OK
dd. In CDM-PDD section C.2.2.1 are the dates provided in the following format: (DD/MM/YYYY)?	EB 41	Ann 12	01/01/2012 or the date of registration, whichever is later. CAR-11 was issued CAR-11: In the section C.2.2.1, the starting date of fixed crediting period is 01/09/2011 (or registration date, whichever is later). However, in the table A.4.2 and section B.6.4, the starting date is 01/08/2011.	CAR-11	OK



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ee. In CDM-PDD section C.2.2.2 is the length of the crediting period in years and months Provided?	EB 41	Ann 12	10 years	OK	OK
ff. In CDM-PDD section D.2 are the conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the Host Party, if environmental impacts are considered significant by the project participants or the Host, provided?	EB 41	Ann 12	<p>Yes. The conclusion stated. The support documents have been provided during desk review assessment.</p> <p>CAR-12 was issued</p> <p>CAR-12: In the section D.1, the PDD Version 1.0 states that the Project is expected to result in the resettlement of the local communes of 646 households. However, by cross checking with actual records, Validation team found that 550 households will be re-settled by the implementation of the Project</p>	CAR-12	OK
gg. In CDM-PDD section E.1 are the following provided?	EB 41	Ann 12		OK	OK



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i. The process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.	EB 41	Ann 12	<p>Yes. Representatives of local People Committees, local people in the affected areas were interviewed to join the meeting in order to consult and comment on the proposed project in January 2009</p> <p>CAR-13 and CAR-14 were issued</p> <p>CAR-13: Pursuant to global comments received via UNECCC website, the web hosted PDD was not transparent to describe the social impact, the Project causes a serious impact to the Community, the project took over 100.96 km² of land, there were 07 communes and towns to be removed including 0.9km National road number 07, the resident to be settle up to 3,299 people.</p> <p>CAR-14: In the PDD Version 01, section E.1 provided the information of description to invite comments from stakeholder in Tam Quang commune only. Actually, the Project is implemented in total 07 communes.</p>	CAR-13 CAR-14	OK
ii. The project activity is described in a manner, which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures.	EB 41	Ann 12	Yes. By collecting comments from local authorities and people	OK	OK
iii. The local stakeholder process has been completed before submitting the proposed project activity to the DOE for validation.	EB 41	Ann 12	Yes. Completed in July 2007	OK	OK
hh. In CDM-PDD section E.2 are following provided?	EB 41	Ann 12		OK	OK
i. Identification of local stakeholders that have	EB 41	Ann	Yes.	OK	OK



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made comments		12	Local people organized internal meeting and comments on proposed project		
ii. A summary of this comments.	EB 41	Ann 12	Please see the demonstration in the PDD, section E.2	OK	OK
ii. In CDM-PDD section E.3 is the explanation of how due account have been taken of comments received from local stakeholders provided?	EB 41	Ann 12	Yes. The local stakeholders are all supportive of the proposed project. Hence, it is unnecessary to modify the project design according to comments received	OK	OK
jj. In CDM-PDD Annex 1 are the following provided?	EB 41	Ann 12		OK	OK
i. Contact information of project participants	EB 41	Ann 12	Yes	OK	OK
ii. For each organisation listed in section A.3 the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail	EB 41	Ann 12	Yes	OK	OK
kk. In CDM-PDD Annex 2 is information from Parties included in Annex I on sources of public funding for the project activity which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties provided?	EB 41	Ann 12	Yes. No public funding from Annex I parties is involved in the proposed project activity	OK	OK
ll. In CDM-PDD Annex 3 is the background information used in the application of the baseline methodology provided?	EB 41	Ann 12	Yes	OK	OK
mm. In CDM-PDD Annex 4 is the background information used in the application of the monitoring methodology provided?	EB 41	Ann 12	Yes	OK	OK
4. Project description					
a. Does the PDD contain a clear description of the project activity that provides the reader with a	VVM	58	Yes	OK	OK



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clear understanding of the precise nature of the project activity and the technical aspects of its implementation?					
b. Is the description of the proposed CDM project activity as contained in the PDD:	VVM	59		OK	OK
i. sufficiently covering all relevant elements?	VVM	59	Yes	OK	OK
ii. accurate?	VVM	59	Yes	OK	OK
iii. providing the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM	59	Yes	OK	OK
iv. Are there any changes/modifications compared to the webhosted PDD?	VVM	59	There is no change or modifications compared with web hosted PDD, Version 01	OK	OK
c. Is the proposed CDM project activity in existing facilities or or utilizing existing equipments?	VVM	60	No. The project is a newly built hydro electric power plant	OK	OK
d. Is the CDM project activity one of the following types:	VVM	60		OK	OK
i. Large scale?	VVM	60	Yes. The installed capacity of the Project is 100 MW	OK	OK
ii. Non-bundled small scale projects with emission reductions exceeding 15,000 tonnes per year?	VVM	60	No	OK	OK
iii. Bundled small scale projects, each with emission reductions not exceeding 15,000 tonnes?	VVM	60	No	OK	OK
e. If yes to (c) and (d) above, was a physical site inspection conducted to confirm that the description in the PDD reflects the proposed CDM project activity, unless other means are specified in the methodology?	VVM	60	Yes. The site – visit was conducted by BV validation team on 25 th and 26 th Apr 2011	OK	OK
f. If yes to (d.iii) above, was the number of physical site visits base on samping?	VVM	60	Not applicable	-	-
g. If yes is the sampling size appropriately justified through statistical analysis?	VVM	60	Not applicable	-	-



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h. For other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year, was a physical site inspection conducted?	VVM	61	Not applicable	-	-
i. For all other proposed CDM project activities not referred to in paragraphs 59 – 61, was a physical site inspection conducted?	VVM	62	Not applicable	-	-
j. If no, was it appropriately justified?	VVM	62	Not applicable	-	-
k. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	No	OK	OK
l. If yes, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM	63	Not applicable	-	-
5. Baseline and monitoring methodology					
a. General requirement					
a. Do the the baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board?	VVM	65	Yes	OK	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer to (5.b.a) below	-	-
c. Had the PP correctly applied the selected methodology?	VVM	66	Refer to (5.b.d) below	-	-
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (5.c) below	-	-
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (5.d) below	-	-
f. Had the selected methodology been correctly	VVM	67	Refer to (5.e) below	-	-



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applied with respect to Algorithms and/or formulae used to determine emission reductions?					
g. Had the selected methodology been correctly applied with respect to additionality?	VVM	67		OK	OK
i. Has the additionality of the project activity been demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality" agreed by the Board, which is available on the UNFCCC website?	ACM	0002 v.13	Yes, the latest version was correctly applied (Version 7.0.0) in the PDD	OK	OK
h. Had the selected methodology been correctly applied with respect to monitoring methodology?	VVM	67	Refer to (7.g), (7.h), (7.i), (7.j) and (7.k) below	-	-
b. Applicability of the selected methodology to the project activity					
a. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity? Is the used version valid?	VVM	68		OK	OK
i. 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 plants); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	ACM	0002 v.13	Yes. The project is a Greenfield plant	OK	OK
b. Has the DOE applied specific guidance provided by the CDM Executive Board in respect to the applicable approved methodology?	VVM	69	Yes	OK	OK



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c. Is the methodology correctly quoted?	VVM	70	Yes. In the PDD, the applied methodology is ACM0002, "Consolidated baseline methodology for grid – connected electricity generation from renewable sources", Version 13.0.0	Pending	OK
d. Are the applicability conditions of the methodology met?	VVM	71	Pending on close CAR-7	OK	OK
i. 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	ACM	0002 v.13	Yes. The Project is a new installation of a hydropower plant	OK	OK
ii. 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 $EG_{PJ,y}$): 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.	ACM	0002 v.13	Not applicable	-	-
iii. In case of hydro power plants, one of the	ACM	0002 v.13	The project activity results a new reservoir with a	OK	OK



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<p>following conditions must apply:</p> <ul style="list-style-type: none"> - The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or - 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 - 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. 			power density of greater than 4 W/m ² . It could be confirmed by checking the reservoir design and the expected installed capacity		
<p>iv. The methodology is not applicable to the following conditions. Please confirm</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 - 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. 	ACM	0002 v.13	Project activity is a new installation of new hydro power plant. Thus, it does not involve switching from fossil fuels to renewable energy sources at the site; not switching from biomass fired power plants and the power density of power plant is higher than 4 W/m ² as checked	OK	OK
<p>v. 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"</p>	ACM	0002 v.13	Not applicable	-	-



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prior to the implementation of the project activity and undertaking business as usual maintenance".					
e. Is the project activity expected to result in emissions other than those allowed by the methodology?	VVM	71	No. Only CO ₂ is considered as emission	OK	OK
f. Is the choice of the methodology justified?	VVM	71	Yes. Justification and explanation provided sufficiently in the PDD	OK	OK
g. Have the project participants shown that the project activity meets each of the applicability conditions or the approved methodology?	VVM	71	Refer to (5.b.d) above	-	-
h. Have the project participants shown that the project activity meets each of the applicability conditions of any tool or other methodology component referred to the methodology?	VVM	71		OK	OK
i. Are each of the applicability conditions of the "Tool to calculate the emission factor for an electricity system" met?	EB 50	Ann 40	Yes. Complying with ACM0002, the "Tool to calculate the emission factor for an electricity system", Version 02.2.1 is used	OK	OK
ii. Are each of the applicability conditions of the "Tool for the demonstration and assessment of additionality" met?	EB 39	Ann 10	Yes. "Tool for the demonstration and assessment of additionality", Version 7.0.0 is used	OK	OK
iii. Are each of the applicability conditions of the "Combined tool to identify the baseline scenario and demonstrate additionality" met?	EB 28	Ann 14	Not applicable	-	-
iv. Are each of the applicability conditions of the "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion" met?	EB 41	Ann 11	Not applicable	-	-
i. Is the DOE, based on local and sectoral knowledge, aware that comparable information is available from sources other than that used in the PDD?	VVM	71	Yes	OK	OK



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j. If yes, was the PDD cross checked against the other sources to confirm that the project activity meets the applicability conditions of the methodology? (provide the reference to these choices)	VVM	71	Yes	OK	OK
k. Can a determination regarding the applicability of the selected methodology to the proposed CDM project activity be made?	VVM	72	Yes	OK	OK
l. If no, clarification of the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	Not applicable	-	-
m. If answer to (5.b.d) above is "no", revision or deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	73	Not applicable	-	-
n. If yes to (5.b.l) and (5.b.m) above, a request for registration was submitted before the CDM Executive Board has approved the proposed deviation or revision?	VVM	74	Not applicable	-	-
c. Project boundary					
a. Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?	VVM	78		OK	OK
i. Does the extent of the project boundary, as described in the PDD, includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to?	ACM	0002 v.13	Yes. The project boundary includes water retaining structure with auxiliary facilities; power house with auxiliary facilities and the grid into which the electricity will be connected	OK	OK



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ii. Are the greenhouse gases and emission sources that are included in or excluded from the project boundary shown in a table format as per applicable methodology?	ACM	0002 v 11	Yes. Only emission of CO ₂ is considered. A table in section B.3 was provided properly	OK	OK
b. Is the delineation in the PDD of the project boundary correct and include identification of all locations, processes and equipment including secondary equipment and associated processes such as logistics etc.?	VVM	79	Yes	OK	OK
c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline?	VVM	79	Yes	OK	OK
d. Have changes been made to the project boundary in comparison to the webhosted PDD. If yes please comment on the reason for the changes.	VVM	79	There is no change or modifications compared with web hosted PDD.	OK	OK
e. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	79	Yes	OK	OK
f. Does the methodology allow project participant to choose whether a source or gas is to be included within the project boundary	VVM	79	Yes. For hydropower plant, CH ₄ can be included as gas. However, because of power density of the reservoir is greater than 10 W/m ² . CH ₄ is neglected	OK	OK
g. If yes, have the project participants justified that choice?	VVM	79	Yes	OK	OK
h. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	79	Yes	OK	OK
d. Baseline identification					
a. Does the PDD identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the	VVM	81	Yes. The baseline scenario was clearly identified in the section B.4 of the PDD in accordance with ACM0002, Version 13.0.0 that "Electricity delivered	OK	OK



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anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity?			to the Grid by the Project would have otherwise been generated by the operation of grid – connected power plants and by the addition of new generation sources”		
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82		OK	OK
i. If the project activity is the install a new grid-connected renewable power plant/unit (greenfield plant), is the baseline scenario identified appropriately in accordance with the ACM0002 ver.11?	ACM	0002 v.13	Yes. As per methodology ACM0002, Version 13.0.0, the baseline scenario is prescribed and no further analysis required. Thus, there is no need to take steps to identify the baseline scenarios	OK	OK
ii. If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, is the baseline scenario identified appropriately in accordance with the ACM0002 ver. 11? And is the point of time at which the generation facility would likely be replaced or retrofitted (DATE Baseline Retrofit) reasonably defined?	ACM	0002 v.13	Not applicable	-	-
iii. If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit, is the baseline scenario identified following the step-wise procedure in accordance with the ACM0002 ver.11?	ACM	0002 v.13	Not applicable	-	-
iv. Are the realistic and credible alternative baseline scenarios for power generation appropriately identified following the Step 1 of the “Combined tool to identify the baseline scenario and demonstrate additionality”? (Step	ACM	0002 v.13	Not applicable	-	-



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1)					
v. Are the realistic and credible alternative baseline scenarios i.e. P1, P2 and P3 appropriately applied Barrier analysis following the Step 2 of the “Combined tool to identify the baseline scenario and demonstrate additionality”? (Step 2)	ACM	0002 v.13	Not applicable	-	-
vi. If more than one alternative is remaining after Step 2, is Investment analysis appropriately applied (apply an Investment Comparison as per step 3 of the “Combined tool to identify the baseline scenario and demonstrate additionality” or a Benchmark Analysis as per step 2b of the “Tool for the demonstration and assessment of additionality”)? (Step 3)	ACM	0002 v.13	Yes. Benchmark analysis is applied	OK	OK
c. Does the selected methodology require use of tools (such as the “Tool for the demonstration and assessment of additionality” and the “Combined tool to identify the baseline scenario and demonstrate additionality”) to establish the baseline scenario?	VVM	82	Not applicable	-	-
d. If yes, was the methodology consulted on the application of these tools? (In such cases, the guidance in the methodology shall supersede the tool.)	VVM	82	Not applicable	-	-
e. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	83	Not applicable	-	-
f. If yes, are all scenarios that are considered by the project participants and are supplementary to those required by the methodology reasonable in	VVM	83	Not applicable	-	-



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the context of the proposed CDM project activity?					
g. Has any reasonable alternative scenario been excluded?	VVM	83	No	OK	OK
h. Is the baseline scenario identified reasonably supported by:	VVM	84			
i. Assumptions?	VVM	84	No. All evidences to identify baseline scenario are clearly for the determination of validation team	OK	OK
ii. Calculations?	VVM	84	No. All evidences to identify baseline scenario are clearly for the determination of validation team	OK	OK
iii. Rationales?	VVM	84	No. All evidences to identify baseline scenario are clearly for the determination of validation team	OK	OK
i. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	84	Yes.	OK	OK
j. Was the information provided in the PDD cross checked with other verifiable and credible sources, such as local expert opinion, if available? (identify the sources)	VVM	84	Yes. All document and source links provided were sufficiently checked by validation team and confirmed	OK	OK
k. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	85	Yes	OK	OK
l. Have all relevant policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	VVM	85	Yes	OK	OK
m. Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM	86	Yes	OK	OK



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e. Algorithms and/or formulae used to determine emission reductions					
a. Do the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring?	VVM	89	Yes	OK	OK
b. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90		OK	OK
i. Are the Project emissions appropriately calculated?	ACM	0002 v.13	Yes. The project emission is determined as zero per the ACM0002, Version 13.0.0	OK	OK
ii. Are the Baseline emissions appropriately calculated specifically for (a) greenfield plants or (b) retrofit and replacements or (c) capacity additions?	ACM	0002 v.13	Yes. For Greenfield plants	OK	OK
iii. Are the Leakage appropriately calculated?	ACM	0002 v.13	Yes. As per the ACM0002, Version 13.0.0, leakage emission of this project is not considered. In the PDD, these emissions sources are neglected	OK	OK
iv. Are the Emission reductions appropriately calculated?	ACM	0002 v.13	Yes $ER_v = BE_v - PE_v - LE_v$	OK	OK
c. Have project participants prepared as part of the CDM-PDD an estimate of likely emission reductions for the proposed crediting period? This estimate should, in principle, employ the same methodology as selected for the calculation of emission reductions. Where the grid emission factor (EFCM,grid,y) is determined ex post during monitoring, project participants may use models or other tools to estimate the emission reductions prior to validation.	ACM	0002 v.13	Yes. Approximate emission reductions are provided. Annual emission reductions of 242,416 tonnes CO ₂ e are estimated for the first crediting period. Pending on close CAR-11	Pending	OK



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d. Does the methodology provide for selection between different options for equations or parameters?	VVM	90	Yes	OK	OK
e. If yes, has adequate justification been provided (based on the choice of the baseline scenario, context of the proposed CDM project activity and other evidence provided)?	VVM	90	Yes	OK	OK
f. If yes, have correct equations and parameters been used, in accordance with the methodology selected?	VVM	90	Refer to (5.e.b) above	-	-
g. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	91	Yes. Via validating the monitoring plan, relevant procedures, validation team confirm that parameters and data will be properly monitored by responsible persons of the Project	OK	OK
h. If no, and these data and parameters will remain fixed throughout the crediting period, are all data sources and assumptions:	VVM	91		OK	OK
i. Appropriate and correct?	VVM	91	Not applicable	-	-
ii. Applicable to the proposed CDM project activity?	VVM	91	Not applicable	-	-
iii. Resulting in a conservative estimate of the emission reductions?	VVM	91	Not applicable	-	-
i. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	91	Yes. Because at the time of validation stage, the Project has not commissioned yet.	OK	OK
j. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	91	Yes. Estimated data are sufficiently provided in the PDD	OK	OK
6. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM project activity is additional?	VVM	94	Yes	OK	OK
b. Does the CDM-PDD state the latest version of	ACM	0002	Yes, the latest version of the additionality tool was	OK	OK



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the additionality tool being used?		v.13	addressed in the PDD for utilizing. Version 7.0.0 of "Tool for the demonstration and assessment the additionality"		
c. Were the following steps of the tool to assess additionality used:	EB 39	Ann 10		OK	OK
i. Identification of alternatives to the project activity?	EB 39	Ann 10	Yes	OK	OK
ii. Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible?	EB 39	Ann 10	Yes	OK	OK
iii. Barriers analysis?	EB 39	Ann 10	No	OK	OK
iv. Common practice analysis?	EB 39	Ann 10	Yes	OK	OK
d. In step 1 (i) have all the sub-steps as below been followed?	EB 39	Ann 10		OK	OK
i. Sub-step 1a: Define alternatives to the project activity	EB 39	Ann 10	Alternative 1: the proposed project will be undertaken without CDM registration Alternative 2: Continuation of current situation is alternative of the Project	OK	OK
ii. Sub-step 1b: Consistency with mandatory laws and regulations	EB 39	Ann 10	Yes. All 2 alternatives are consistent with mandatory laws and regulations. By checking Vietnamese and Local laws and regulations, Validation team confirm that the Project activity (without CDM registration) complies with Laws and regulations	OK	OK
e. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10		OK	OK
i. (a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes, alternative 1	OK	OK



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ii. (b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology;	EB 39	Ann 10	No	OK	OK
iii. (c) If applicable, continuation of the current situation (no project activity or other alternatives undertaken).	EB 39	Ann 10	Yes, alternative 2	OK	OK
f. Has the project participant included the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region?	EB 39	Ann 10	Yes	OK	OK
g. Has the outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	EB 39	Ann 10	Alternative 1: The proposed project undertaken without the CDM Alternative 2: Continuation of the current situation. Pursuant to ACM0002, Version 13, validation team confirm that alternatives are correctly identified	OK	OK
h. Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.?	EB 39	Ann 10	All alternatives are compliance with all mandatory applicable legal and regulatory requirements for electricity generation in Vietnam. Thus, the realistic alternative is definitely compliance	OK	OK
i. If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in	EB 39	Ann 10	Because all alternatives are compliance as mentioned above. Thus, this section is no applicable	-	-



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which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?					
j. Has the outcome of Step 1b: Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations done correctly? Please state the outcome.	EB 39	Ann 10	2 alternatives are all consistent with laws in Vietnam By checking investment license of the project, validation team can confirm.	OK	OK
k. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 39	Ann 10	Project Participants have already selected step 2 only	OK	OK
l. In step 2, have all the sub-steps as below been followed?	EB 39	Ann 10		OK	OK
i. Sub-step 2a: Determine appropriate analysis method;	EB 39	Ann 10	Yes	OK	OK
ii. Sub-step 2b: Option I. Apply simple cost analysis;	EB 39	Ann 10	Because the proposed project activity will receive revenue from the sale of electricity thus simple cost analysis would not be considered CL-2 was issued CL-2: No supporting information to justify that the option I of Investment analysis (Simple cost analysis) is not applicable	CL-2	OK
iii. Sub-step 2b: Option II. Apply investment comparison analysis;	EB 39	Ann 10	Because the alternative is receiving electricity from the national grid rather than new project, thus option III, benchmark analysis were selected	OK	OK



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iv. Sub-step 2b: Option III. Apply benchmark analysis;	EB 39	Ann 10	Because the alternative is receiving electricity from the national grid rather than new project, thus option III, benchmark analysis were selected	OK	OK
v. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 39	Ann 10	Yes	OK	OK
vi. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 39	Ann 10	Yes	OK	OK
m. In sub-step 2a has the determination of appropriate method of analysis done as per the guidance as below?	EB 39	Ann 10		OK	OK
i. Simple cost analysis if the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I).	EB 39	Ann 10	Not applicable	-	-
ii. Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	EB 39	Ann 10	Because the alternative is receiving electricity from the national grid rather than new project, thus option III, benchmark analysis were selected	OK	OK
n. Has the below guideline followed for sub-step 2b Option I. Apply simple cost analysis? Document the costs associated with the CDM project activity and the alternatives identified in Step1 and demonstrate that there is at least one alternative which is less costly than the project activity.	EB 39	Ann 10	Because the option III was chosen, this section is not applicable	-	-
o. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis? Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	EB 39	Ann 10	Because the option III was chosen, this section is not applicable	-	-



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p. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis?	EB 39	Ann 10		OK	OK
i. Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context.	EB 39	Ann 10	The project developer selected the WACC as a benchmark for this project IRR pursuant to "Guidelines on Assessment of Investment Analysis", Annex 58, EB51	OK	OK
ii. When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.	EB 39	Ann 10	Yes	OK	OK
iii. Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company	EB 39	Ann 10	Yes.	OK	OK



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internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified. Please specify benchmark and justify.					
q. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)?	EB 39	Ann 10		OK	OK
i. Calculate the suitable financial indicator for the proposed CDM project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country.	EB 39	Ann 10	<p>Yes</p> <p>CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4 and CL-5 were issued</p> <p>CAR-15: The electricity tariff used in Excel spreadsheet is 677 VND/kWh, consistently with assumption in the FSR. However, the PDD Version 01 states that the tariff is 647 VND/kWh</p> <p>CAR-16: In the PDD Version 01, according to Decision 2014/QĐ-BCN (issued by Ministry of</p>	<p>CAR-15</p> <p>CAR-16</p> <p>CAR-17</p> <p>CAR-18</p> <p>CAR-19</p> <p>CAR-20</p> <p>CAR-21</p> <p>CAR-22</p> <p>CL-3</p> <p>CL-4</p> <p>CL-5</p>	OK



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		<p>Industry of Vietnam), tariff for similar hydropower projects for dry season was defined from 2.5 — 5.0 US cent/kWh. However, by cross checking with this Decision, the applied tariff is from 2.0 — 5.0 US cent/kWh. Besides, the Decision 2014/QDBCN was expired at the time of decision making</p> <p>CAR-17: The applied value of Environment tax rate in the PDD Version 01 derived from Circular 42/2007/TT-BTC (issued by Ministry of Finance on 27th Apr 2007, and come into effective later). However, the investment decision of Management Board was made on 18th Apr 2007</p> <p>CAR-18: Pursuant to global comments received via UNFCCC website, biggest shareholder of the Project owner is EVN (Electricity Group of Vietnam with the share of 85%). With this share, the Project will face nearly no investment barriers and have many advantages for high electricity tariff, ODA or governmental bond.</p> <p>CAR-19: Pursuant to global comments received via UNFCCC website, the Project cost and Project IRR published in the Project owner website are not similar to parameter applied in the PDD Version 01</p> <p>CAR-20: Pursuant to global comments received via UNFCCC website, the Project was invested by EVN. Thus, the electricity tariff can be higher than 4.1 US cent/kWh (decided by EVN — Electricity buyer)</p>	
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		<p>CAR-21: Source 13 in the PDD Version 01 cannot be found during Validation stage</p> <p>CAR-22: No appropriate justification for the applied value of depreciation of civil works in Investment analysis</p> <p>CL-3: Justification of net annual electricity generation calculation is not available in the description of Project activity</p> <p>CL-4: Source 10 in the PDD does not substantiate the provided information for inflation</p> <p>CL-5: In the excel spreadsheet of IRR calculation, sources for selection of "Residual rate of fixed assets"; "Exchange rate VND — USD, VND — EUR"; "Price of Carbon" are not available</p>		
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ii. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the CDM-PDD.	EB 39	Ann 10	Yes. The spread excel sheet for IRR calculation has been appropriately provided Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5	Pending	OK
iii. Justify and/or cite assumptions.	EB 39	Ann 10	All indicators are from FSR, decision on approving invest, legislation By document checking, validation team can confirm all source data are correct Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5	Pending	OK
iv. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions.	EB 39	Ann 10	Yes. Relevant costs are included	OK	OK
v. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.	EB 39	Ann 10	Not applicable as option III was used	-	-
vi. Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM activity. Please specify details for above.	EB 39	Ann 10	As calculated, the IRR without revenue from CER is 11.12% which is lower the selected benchmark 12.375% Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5	Pending	OK
r. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II	EB 39	Ann 10	Yes. Four main variable factors are identified for sensitivity analysis of the project including Annual	CAR-23	OK



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and III)? Include a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.			amount of electricity exported to the national grid; Investment Costs; Electricity tariff and Annual O&M cost from -10% to +10%		
			CAR-23 was issued		
			CAR-23: In the Sensitivity analysis, PDD Version 01 states that "It is unlikely for the electricity generation of the Project to increase more than 15.80% because electricity generation was estimated according to historical hydrology data for 44 years (1960 – 2003). However, during Validation stage, no supporting evidence for justification was sufficiently provided"		
s. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10	Yes. It concludes that: the project is not financially attractive without CER revenue	OK	OK
t. In step 3: Barrier analysis have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project activity;	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
ii. Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity).	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
u. Has the below guideline followed for Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project?	EB 39	Ann 10			
i. (a) Investment barriers: For alternatives undertaken and operated by private entities:	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-



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Similar activities have only been implemented with grants or other non-commercial finance terms. No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin.					
ii. (b) Technological barriers: Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; Lack of infrastructure for implementation and logistics for maintenance of the technology, Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information, The particular technology used in the proposed project activity is not available in the relevant region.	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
iii. (c) Barriers due to prevailing practice: The project activity is the "first of its kind".	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
iv. (d) Other barriers, preferably specified in the	EB 39	Ann 10	Because Barrier analysis was not selected. This	-	-



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underlying methodology as examples.			section will be not applicable		
v. Has the outcome from Step 3a clearly mentioned in PDD?	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
w. Has the below guideline followed for Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)?	EB 39	Ann 10			
i. If the identified barriers also affect other alternatives, explain how they are affected less strongly than they affect the proposed CDM project activity. In other words, demonstrate that the identified barriers do not prevent the implementation of at least one of the alternatives. Any alternative that would be prevented by the barriers identified in Sub-step 3a is not a viable alternative, and shall be eliminated from consideration.	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
ii. Provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers.	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
iii. The type of evidence to be provided should include at least one of the following: (a) Relevant legislation, regulatory information or industry norms; (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, industry associations,	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-



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companies, bilateral/multilateral institutions, etc; (c) Relevant statistical data from national or international statistics; (d) Documentation of relevant market data (e.g. market prices, tariffs, rules); (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others. Please specify.					
x. Has the outcome from Step 3 clearly mentioned in PDD?	EB 39	Ann 10	Because Barrier analysis was not selected. This section will be not applicable	-	-
y. In step 4: Common practise analysis have all the sub-steps as below followed?	EB 39	Ann 10		OK	OK
i. Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 39	Ann 10	Yes	OK	OK
ii. Sub-step 4b: Discuss any similar Options that are occurring.	EB 39	Ann 10	Yes	OK	OK
z. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity? Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other CDM project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.	EB 39	Ann 10	CAR-24, was issued CAR-24: In the Common Practice analysis, PDD Version 01 provided 20 similar projects for discussion. However, by checking available and reliable sources, Validation team found that there are 45 similar projects, which shall be taken into account for discussion. Pursuant to global comments received via UNFCCC website, discussion to exclude Se San 3, Se San 3A, Quang Tri, Plei Krong, A Vuong is not correct due to unreasonable application of inflation rate and investment climate in Vietnam	CAR-24	OK



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aa. Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring? If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-accessibility of data/information.	EB 39	Ann 10	<p>CAR-25 and CL-6 were issued</p> <p>CAR-25: Pursuant to global comments received via UNFCCC website, there is a Governmental document to support the implementation of the Project</p> <p>CL-6: Source 16 provided in the PDD Version 01 does not substantiate sufficiently the information of Master Plan VI of Vietnam National Power Development Plan period 2006—2015, with vision to 2025</p>	CAR-25 CL-6	OK
bb. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	Yes. The Project is not common practice in Vietnam	OK	OK
cc. Has it been proved that the project is additional?	EB 39	Ann 10	Yes. By means of checking relevant evidences, validation team confirm that the Project is additional	OK	OK



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a. Prior consideration of the clean development mechanism					
a. Is the project activity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	98	Yes. The date of publication of the PDD for stakeholders comment is 17 th Feb 2011 and the starting date of the Project is 05/10/2007	OK	OK
b. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	98	CAR-26, CL-7 were issued CAR-26: In the table B.5.1, PDD Version 01, ERPA was signed in September 2010. However, by cross-checking with provided documents, Validation team found that ERPA between Project Owner and CER buyer was signed on 25 th February 2010 CL-7: Dates of FSR and revised FSR are not available. The PDD does not indicate the FSR which was approved on 02/04/2007 (provided in the PDD)	CAR-26 CL-7	OK
c. Is the start date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms", which states that "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins."?	VVM	99	Yes	OK	OK
d. Does the project activity require construction, retrofit or other modifications?	VVM	99	The project activities require construction of new hydro power plant	OK	OK
e. If yes, is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	At the time of validation, the project has not commissioned yet. Thus, the commissioning date will not be considered as project activity start date	OK	OK
f. Is it a new project activity (a project activity with a start date on or after 02 August 2008) or an	VVM	100	Based on above explanation, the starting date of this	OK	OK



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existing project activity (a project activity with a start date before 02 August 2008)?			project is after 02 nd Aug 2008. Thus, this is a new project activity		
g. For a new project, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, had PPs informed the host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status? (Provide reference to such confirmation from host Party DNA and UNFCCC secretariat).	VVM	101	Not applicable	-	-
h. For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are the following evidences provided:	VVM	102	Not applicable	-	-
ii. evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project, including, inter alia:	VVM	102	Not applicable	-	-
a. minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity?	VVM	102	Yes	OK	OK
iii. reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation, including, inter alia:	VVM	102			



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a. contract with consultants for CDM/PDD/methodology services?	VVM	102	Yes. Agreement of CDM consultancy was signed on 12 th Sep 2007. By checking provided contract, Validation team confirmed that the contract was consistently signed between Project owner and CDM consultant company	OK	OK
b. Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds)?	VVM	102	Yes. In the CDM contract, revenue from CER was taken into account	OK	OK
c. evidence of agreements or negotiations with a DOE for validation services?	VVM	102	Not applicable	-	-
d. submission of a new methodology to the CDM Executive Board?	VVM	102	Not applicable	-	-
e. publication in newspaper?	VVM	102	Not applicable	-	-
f. interviews with DNA?	VVM	102	Not applicable	-	-
g. earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	102	Not applicable	-	-
h. Has the chronology of events including time lines been appropriately captured and explained/detailed in the PDD?	VVM	102	Not applicable	-	-
b. Identification of alternatives					
a. Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVM	105	Yes. It has prescribed the baseline scenario as per ACM0002	OK	OK
b. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	105	Not applicable	-	-
c. Does the list of alternatives given in the PDD	VVM	106		OK	OK



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ensure that:					
i. the list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity?	VVM	106	Yes. Alternative 1 is the proposed project activity undertaken without CDM registration	OK	OK
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?	VVM	106	Yes	OK	OK
iii. the alternatives comply with all applicable and enforced legislation?	VVM	106	Yes	OK	OK
c. Investment analysis					
a. Has investment analysis been used to demonstrate the additionality of the proposed CDM project activity?	VVM	108	Yes	OK	OK
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	108		OK	OK
i. the most economically or financially attractive alternative?	VVM	108	Not applicable	-	-
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108	Yes. The project IRR without CER revenue is 11.12% versus the selected benchmark 12.375% Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5	Pending	OK
c. Was this shown by one of the following approaches?	VVM	109		OK	OK
i. The proposed CDM project activity would	VVM	109	Not applicable	-	-



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produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity.					
ii. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	109	Not applicable	-	-
iii. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	109	Yes. The project IRR without CER revenue is 11.12% versus the selected benchmark 12.375% Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5	Pending	OK
d. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 51	Ann 58	The project participant chose a lifetime of 40 years to assess the cash flows for the project IRR. The chosen period of 40 years for financial assessment is deemed to be appropriate. The project owner chose a linear depreciation over 20 years period. No fair value remains.	OK	OK
e. Does the project IRR and equity IRR calculations reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58	Yes. Project IRR are calculated for 40 years Spread excel sheet is provided	OK	OK
f. Does the IRR calculation include the cost of major maintenance and/or rehabilitation if these	EB 51	Ann 58	Yes. Operation and Maintenance cost are included accordingly with Vietnamese laws	OK	OK



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are expected to be incurred during the period of assessment?					
g. Do the project participants justify the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period?	EB 51	Ann 58	The depreciation of the fixed asset investment is linear over the 20 years assessment period. Thus after 20 years the fair value is 0.	OK	OK
h. Does the cash flow in the final year include a fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58	Yes. It is in accordance with international best practice and thus assessed as OK.	OK	OK
i. Has the fair value been calculated in accordance with local accounting regulations where available, or international best practice?	EB 51	Ann 58	The investment is completely depreciated. Thus no fair value remains.	OK	OK
j. Does the fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?	EB 51	Ann 58	The investment is completely depreciated. Thus no fair value remains.	OK	OK
k. Was depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?	EB 51	Ann 58	Yes Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5	Pending	OK
l. Has taxation been included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons?	EB 51	Ann 58	CAR-27 was issued CAR-27: In the PDD Version 01, in Investment analysis, Income tax rate was taken into account. However, by cross — checking with excel spreadsheet, this tax was not applied during calculating project IRR	CAR-27	OK
m. Are the input values used in all investment	EB 51	Ann 58	Yes. By checking document, validation team confirm	Pending	OK



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analysis valid and applicable at the time of the investment decision taken by the project participant?			that input values are correctly applied		
n. Is the timing of the investment decision consistent and appropriate with the input values?	EB 51	Ann 58	Pending on close CAR-27 Yes	Pending	OK
o. Are all the listed input values been consistently applied in all calculations?	EB 51	Ann 58	Pending on close CAR-15, CAR-16, CAR-17, CAR-18, CAR-19, CAR-20, CAR-21, CAR-22, CL-3, CL-4, CL-5 Yes.	Pending	OK
p. Does the investment analysis reflect the economic decision making context at point of the decision to recommence the project in the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM?	EB 51	Ann 58	The decision to invest in the project was taken in 18 th Apr 2007 during the Board meeting of the management. The DOE can confirm that the period is assessed so that material changes to the input values are unlikely. This assessment is based on the issuance of the investment license by the Vietnamese government in 08 th Aug 2007, where the same values were confirmed.	OK	OK
q. Have project participants supplied the spreadsheet versions of all investment analysis?	EB 51	Ann 58	Yes. Unprotected spreadsheets of calculation are provided	OK	OK
r. Are all formulas used in this analysis readable and all relevant cells be viewable and unprotected?	EB 51	Ann 58	Yes	OK	OK
s. In cases where the project participant does not wish to make such a spreadsheet available to the public has the PP provided an exact read-only or PDF copy for general publication?	EB 51	Ann 58	Not applicable	-	-
t. In case the PP wishes to black-out certain	EB 51	Ann 58	Not applicable	-	-



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elements of the publicly available version, is it justifiable?					
u. Was the cost of financing expenditures (i.e. loan repayments and interest) included in the calculation of project IRR?	EB 51	Ann 58	Yes	OK	OK
v. In the calculation of equity IRR, has only the portion of investment costs which is financed by equity been considered as the net cash outflow?	EB 51	Ann 58	Not applicable	-	-
w. Has the portion of the investment costs which is financed by debt been considered a cash outflow in the calculation of equity IRR? (this is not allowed)	EB 51	Ann 58	Not applicable	-	-
x. Was a pre-tax benchmark be applied?	EB 51	Ann 58	Yes. Pending on close CAR-27	Pending	OK
y. In cases where a post-tax benchmark is applied, is actual interest payable taken into account in the calculation of income tax?	EB 51	Ann 58	Not applicable	-	-
z. In such situations, was interest calculated according to the prevailing commercial interest rates in the region, preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three years?	EB 51	Ann 58	Yes	OK	OK
aa. In cases where a benchmark approach is used is the applied benchmark appropriate to the type of IRR calculated?	EB 51	Ann 58	Yes. Project IRR was calculated	OK	OK
bb. Has local commercial lending rates or weighted average costs of capital (WACC) selected as appropriate benchmarks for a project IRR?	EB 51	Ann 58	Local Commercial Lending rate is selected as benchmark for a project IRR, accordingly to "Tool for the demonstration and assessment for additionality"	OK	OK



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cc. Has required/expected returns on equity selected as appropriate benchmark for an equity IRR?	EB 51	Ann 58	Yes	OK	OK
dd. In case benchmarks supplied by relevant national authorities selected is it applicable to the project activity and the type of IRR calculation presented?	EB 51	Ann 58	Yes	OK	OK
ee. In the cases of projects which could be developed by an entity other than the project participant is the benchmark applied based on publicly available data sources which can be clearly validated?	EB 51	Ann 58	Because the Project will not be developed by another entity, this section will be not applicable	-	-
ff. Have internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) been applied in cases where there is only one possible project developer?	EB 51	Ann 58	Yes	OK	OK
gg. In such cases, have these values been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?	EB 51	Ann 58	Yes	OK	OK
hh. Has a minimum clear evidence of the resolution by the company's Board and/or shareholders been provided to the effect as above?	EB 51	Ann 58	Yes	OK	OK
ii. Has a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects been conducted?	EB 51	Ann 58	Yes.	OK	OK



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jj. Does the risk premiums applied in the determination of required returns on equity reflect the risk profile of the project activity being assessed, established according to national/international accounting principles? (It is not considered reasonable to apply the rate general stock market returns as a risk premium for project activities that face a different risk profile than an investment in such indices.)	EB 51	Ann 58	Yes	OK	OK
kk. Has an investment comparison analysis and not a benchmark analysis used when the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services?	EB 51	Ann 58	Yes	OK	OK
ll. Have variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues been subjected to reasonable variation (positive and negative) and the results of this variation been presented in the PDD and be reproducible in the associated spreadsheets?	EB 51	Ann 58	Yes	OK	OK
mm. Have a corrective action been raised for a variable to be included in the sensitivity analysis which constitute less than 20% and have a material impact on the analysis ?	EB 51	Ann 58	No	OK	OK
nn. Is the range of variations selected is reasonable in the project context?	EB 51	Ann 58	Yes	OK	OK
oo. Does the variations in the sensitivity analysis at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of	EB 51	Ann 58	Yes	OK	OK



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the specific project circumstances?					
pp. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative, is an assessment done of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity?	EB 51	Ann 58	No	OK	OK
qq. Was the plant load factor defined ex-ante in the CDM-PDD according to one of the following options:	EB 48	Ann 11		OK	OK
i. The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval?	EB 48	Ann 11	Not applicable	-	-
ii. The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)?	EB 48	Ann 11	Yes. The load factor of plant defined in the Feasibility Study report	OK	OK
rr. Was a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters using the available evidence and expertise in relevant accounting practices conducted?	VVM	111	Yes	OK	OK
ss. Were the parameters cross-checked against third-party or publicly available sources, such as invoices or price indices?	VVM	111	Yes. All reliable sources were cross-checked by Validation team and confirmed	OK	OK



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tt. Were feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	VVM	111	Yes	OK	OK
uu. Was the correctness of computations carried out and documented by the project participants assessed?	VVM	111	Yes	OK	OK
vv. Was the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions assessed?	VVM	111	Yes. 4 parameters were analysed (annual amount of electricity exported to the national grid; Investment costs, Electricity tariff and Annual O&M costs) with + 10% variations. Validation team confirm that Sensitivity analysis is correctly conducted Pending on close CAR-23	Pending	OK
ww. Is the type of benchmark applied is suitable for the type of financial indicator presented?	VVM	112	Yes. Local Commercial Lending Rate was applied appropriately	OK	OK
xx. Do any risk premiums applied determining the benchmark reflect the risks associated with the project type or activity?	VVM	112	No	OK	OK
yy. To determine this, was it assessed whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by:	VVM	112		OK	OK
i. assessing previous investment decisions by the project participants involved?	VVM	112	Because the Project is the first project invested by the Proejct Owner therefore this section will be not applicable	-	-
ii. determining whether the same benchmark has been applied?	VVM	112	Yes	OK	OK
iii. determining if there are verifiable	VVM	112	Yes	OK	OK



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circumstances that have led to a change in the benchmark?					
zz. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	VVM	113	Yes	OK	OK
xx. If yes:	VVM	113		OK	OK
i. has the FSR been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed?	VVM	113	Yes	OK	OK
ii. Are the values used in the PDD and associated annexes fully consistent with the FSR?	VVM	113	Yes. By document checking, Validation team confirm that all values used in the PDD are consistent with the FSR sources	OK	OK
iii. If not, was the appropriateness of the values validated?	VVM	113	Not applicable	-	-
iv. On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVM	113	Yes. By cross-checking with all relevant sources, with respect to time fo decision making, Validation team confirm that all input value from the FSR are correct and properly applied	OK	OK
d. Barrier analysis					
a. Has barrier analysis been used to demonstrated the additionality of the proposed CDM project activity?	VVM	115	No	OK	OK



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b. If yes, does the PDD demonstrate that the proposed CDM project activity faces barriers that:	VVM	115		OK	OK
i. prevent the implementation of this type of proposed CMD project activity?	VVM	115	Not applicable	-	-
ii. do not prevent the implementation of at least one of the alternatives?	VVM	115	Not applicable	-	-
c. Are there any issues that have a clear direct impact on the financial returns of the project activity, other than: risk related barriers, for example risk of technical failure, that could have negative effects on the financial performance; or barriers related to the unavailability of sources of finance for the project activity? {If yes, these issues cannot be considered barriers and shall be assessed by investment analysis. [Refer to (6.c) above]}	VVM	116	Not applicable	-	-
d. Were the barriers determined as real by:	VVM	117		-	-
i. assssing the available evidence and/or undertaking interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) to determine whether the barriers listed in the PDD exist?	VVM	117	Not applicable	-	-
ii. ensuring that existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	VVM	117	Not applicable	-	-
iii. Is existence of a barrier substantiated only by the opinions of the project participants? (If yes, this barrier cannot be considered as	VVM	117	Not applicable	-	-



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adequately substantiated)					
e. Were the barriers determined as preventing the implementation of the project activity but not the implementation of at least one of the possible alternatives by applying local and sectoral expertise to judge whether a barrier or set of barriers would prevent the implementation of the proposed CDM project activity and would not equally prevent implementation of <i>at least one of</i> the possible alternatives, in particular the identified baseline scenario?	VVM	117	Not applicable	-	-
e. Common practice analysis					
a. Is this a proposed large-scale, or first-of-its kind small-scale project activity?	VVM	119	Yes. It is a large scale project. The installed capacity is 100 MW	OK	OK
b. If yes, was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality?	VVM	119	Yes. Common practice was conducted appropriately by project participant	OK	OK
c. Was it assessed whether the geographical scope (e.g. 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.	VVM	120	Yes. Similar projects are projects with installed capacity larger and than 50 MW and smaller than 300 MW; started construction post August 2001, not developed by State – owned organization in the entire Vietnam country	OK	OK
d. Was a region other than the entire host country chosen?	VVM	120	No. The entire Vietnam was selected for Common practice	OK	OK
e. If yes, was the explanation why this region is more appropriate assessed?	VVM	120	Not applicable	-	-
f. Using official sources and local and industry	VVM	120	Yes	OK	OK



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expertise, was it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?					
g. Are similar and operational projects, other than CDM project activities, already "widely observed and commonly carried out" in the defined region?	VVM	120	No. The proposed project is not common practice in Vietnam Pending on close CAR-24, CAR-25, CL-6	Pending	OK
h. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	120	Not applicable	-	-
7. Monitoring plan					
a. Does the PDD include a monitoring plan?	VVM	122	Yes	OK	OK
b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	Yes	OK	OK
c. Were the list of parameters required by the the selected methodology identified?	VVM	123	Yes	OK	OK
d. Does the monitoring plan contains all necessary parameters?	VVM	123	Yes Only the quantity of net electricity supplied by the project to the grid is required ($EG_{v,export}$) by the ACM0002, Version 13. This parameter is included in the Monitoring plan	OK	OK
e. Are the parameters clearly described?	VVM	123	Yes	OK	OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	123	Yes	OK	OK
g. Are all data and parameters monitored as per monitoring methodology?	ACM	0002 v.13	Yes	OK	OK



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h. Are all data collected as part of monitoring archived electronically and kept at least for 2 years after the end of the last crediting period?	ACM	0002 v.13	Yes. By monitoring procedure, data will be archived and kept 2 years after the crediting period	OK	OK
i. Are 100% of the data monitored, if not indicated otherwise?	ACM	0002 v.13	Yes	OK	OK
j. Are measurements conducted with calibrated measurement equipment according to relevant industry standards?	ACM	0002 v.13	Yes. The monitoring meter will be calibrated every year by authorized parties. Validation team confirm the calibration procedure is compliance with Vietnamese standards	OK	OK
k. Are the monitoring provisions in the tools referred to in the methodology correctly applied?	ACM	0002 v.13	Yes	OK	OK
l. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Yes	OK	OK
m. Are the following means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified:	VVM	123		OK	OK
i. data management procedures?	VVM	123	Yes	OK	OK
ii. quality assurance procedures?	VVM	123	Yes	OK	OK
iii. quality control procedures?	VVM	123	Yes	OK	OK
8. Sustainable development					
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	125	Pending on close CAR-1	Pending	OK
b. Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVM	126	Pending on close CAR-1, CAR-2	Pending	OK



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9. Local stakeholder consultation					
a. Were local stakeholders (public, including individuals, groups or communities affected, of likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity) invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website?	VVM	128	Yes. Representatives of local People Committees, local people in the affected areas were interviewed to join the meeting in order to consult and comment on the proposed project in July 2007	OK	OK
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	Yes. The local stakeholders are all supportive of the proposed project. Hence, it is unnecessary to modify the project design according to comments received	OK	OK
c. Is the summary of the comments received as provided in the PDD complete?	VVM	129	Yes. By record checking and interviewing, validation team can confirm	OK	OK
d. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	129	Yes	OK	OK
10. Environmental impacts					
a. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	131	Yes. Environmental Impact Assessment Report was made by authorized party and approved by Local People Committee	OK	OK
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	Yes	OK	OK
c. Does the host Party require an environmental impact assessment?	VVM	132	Yes	OK	OK
d. If yes, have the project participants undertaken an environmental impact assessment?	VVM	132	Yes	OK	OK

**Table 2: Resolution of Corrective Action and Clarification Requests**

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR-1: The Letter of Approval from Vietnam is not available in this stage of validation.	1.a 1.b 1.c 1.e 1.f 1.g 2.b 2.g 2.h 2.i 8.a 8.b	Letter of Approval from Vietnam is provided.	<p>The LoA of Vietnam has already submitted to Bureau Veritas by scanned version. It was officially signed by Mr. Tran Hong Ha, Vice Minister – Ministry of Natural Resources and Environment of Viet Nam, DNA of Vietnam. This has been cross – checked via UNFCCC website. In the LoA, it is clearly stated that Vietnam has already ratified the Kyoto Protocol and that it participates voluntarily in the CDM. Besides, it authorized Viet Nam.</p> <p>Power Development Joint Stock Company to participate the Project without obligations. It also confirmed that the Project contributes the sustainable development in Vietnam. This document is assessed reliable. Comparing the PDD and LoA, it could be confirmed that the title of the Project and the name of project participants are exactly matching. Thus, CAR is closed.</p>



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR-2: The Letter of Approval from United Kingdom is not available in this stage of validation.	1.a 1.b 1.c 1.e 1.f 1.g 2.b 2.g 2.h 2.i 8.b	The Project Participant – “Gazprom Marketing & Trading Singapore Pte. Ltd.” has withdrawn from the Project and transferred all the rights and responsibilities to the Project Owner.	By verifying the contract termination document and considering the unilateral status allowed by the Host Country DNA (i.e. Vietnam), the validation team confirms the change as appropriate. CAR is closed.
CAR-3: In the section A.2, PDD Version 01 states that the Project satisfies the sustainability, additionality and feasibility criteria (with supporting sources). However, by accessing provided source, Validation team cannot find information to substantiate the statement	3.d	The evidence indicating that the CDM Project activity in Vietnam have to satisfy the criteria of the suitability, additionality and feasibility set by the Vietnam DNA, which is Circular 10/2006/TT-BTNMT dated on 12th December 2006, has been forwarded to the validation team for their assessment. And the correct link has been put in the revised PDD.	By checking PDD Version 04 and provided documents, Validation team confirmed that the information was appropriately justified. CAR is closed.
CAR-4: In the section A.4.1.3, PDD Version 01 states that the Project locates in Tam Quang Commune, Tuong Duong district, Nghe An Province. However, by means of checking Feasibility Study Report as	3.f	The project construction will impact to 6 communes and 1 town in Tuong Duong district including Tam Quang, Yen Thang, Tam Dinh, Tam Thai, Thach Giam, Xa Luong Communes and Hoa Binh town. This information has been also mentioned in the revised PDD.	By checking PDD Version 04, EIA and FSR, Validation team confirmed that all relevant communes and districts were identified sufficiently. CAR is closed.



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
well as site – visit, Validation team found that the Project locates in 07 communes in Tuong Duong district			
CAR-5: In the description of the Project activity of the PDD, Version 01 the Project is a run-of-river reservoir hydropower plant that involves a forebay. However, during checking on – site, Validation team confirm that the Project activity is an accumulation reservoir hydropower plant without a forebay.	3.h	The project participants have corrected this mistake in the revised PDD.	By checking PDD Version 04, EIA and FSR, Validation team confirmed that all relevant communes and districts were identified sufficiently. CAR is closed.
CAR-6: In the table A.4.1, section A.4.3, PDD Version 01, lifetime of turbines and generators were defined as 34 years and 30 years, respectively. However, operational lifetime is defined as 40 years.	3.h	The expected lifetime of equipment have been revised according to the Decision 709/QD-NLKD dated 13/04/2004 issued by the Ministry of Industry (which provides temporary guidelines for conducting the economic, financial and investment analysis for power generation projects) in the updated PDD. Decision 709/QD-NLKD dated 13/04/2004 that was valid at the time of investment decision defined the operational lifetime of large scale hydropower project is 40 years. Hence, the project participants have selected the operational lifetime of 40 years and this value is also applied for investment analysis.	By checking PDD Version 04, Equipment supply contract and proper legislation, Validation team confirmed that lifetime of equipment are correctly identified. CAR is closed.



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR-7: The Project applies the methodology ACM0002, Version 12.1.0. However: <ul style="list-style-type: none"> - In the B.2 section, source number 9, section B.6.1, section B.6.2, PDD Version 01, version of methodology ACM0002 is 12 - In the table B.3.1, methodology is ACM002, Version 12 	3.k 3.m 5.b.c	The version of the applied methodology ACM0002 (i.e. Version 13.0.0) has been updated correctly in the entire revised PDD.	By checking PDD Version 04, Validation confirmed that version of methodology applied is 13.0.0. CAR is closed.
CAR-8: In the table B.4.1, section B.4, PDD Version 01, the applied values are not in international standard format.	3.n 3.q	The table B.4.1, section B.4, has been revised in the PDD using the international standard format for the emission factor value. And the latest version of "Tool to calculate the emission factor for an electricity system" (Version 02.2.1) has been updated in the revised PDD.	By checking PDD Version 04, Validation team confirmed that the Project developer applied the latest version. CAR is closed.
CAR-9: In the description of the Project activity, the reservoir surface at full level is 9.6 km ² . However, during calculation of Power Density in the section B.6.1, this parameter is 9.5 km ² .	3.p	PDD, section B.6.1, has been revised using the correct value for the reservoir surface area at water full level, i.e. 9.6 km ² .	By checking PDD Version 04 and FSR as well as actual checking, Validation team confirmed that the project reservoir surface is 9.6 km ² . CAR is closed.
CAR-10: In the PDD Version 01, section B.7.2, clause 2.2, the main meter is M11 and the backup meter is M12. However, in clause 2.8 the main	3.u	The project participants have determined the M12 as a main meter and the M11 as a backup meter. Information in PDD, section B.7.2, has been revised accordingly.	By checking PDD Version 04, Validation team confirmed that meters systems are correctly identified. CAR is closed.



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
meter is M12, the backup meter is M11.			
CAR-11: In the section C.2.2.1, the starting date of fixed crediting period is 01/09/2011 (or registration date, whichever is later). However, in the table A.4.2 and section B.6.4, the starting date is 01/08/2011.	3.dd	Starting date of the crediting period has been revised in the PDD as "01/04/2013 or the date of registration, whichever is later". Tables in section A.4.2 and B.6.4, together with section C.2.2.1, have been revised using the new starting date of the crediting period.	By checking PDD Version 04, Validation team confirmed that the start date of crediting period is now correctly identified. CAR is closed.
CAR-12: In the section D.1, the PDD Version 01 states that the Project is expected to result in the resettlement of the local communes of 646 households. However, by cross – checking with actual records, Validation team found that 550 households will be re-settled by the implementation of the Project	3.ff	The number of households to be relocated has been corrected to 585 households based on Decisions issued by the Tuong Duong District People 'Committee in the section D.1 of the revised PDD and the supporting documentations have been provided to the validation team for their review.	By checking PDD Version 04 and provided evidences, Validation team confirmed that the data in the PDD is correct. CAR is closed.
CAR-13: Pursuant to global comments received via UNFCCC website, the web hosted PDD was not transparent to describe the social impact, the Project causes a serious impact to the Community, the project took over 100.96 km ² of land, there were 07 communes and towns to be removed including 0.9km National road number	3.gg	Under section D.1 of the revised PDD the project participants have considered seriously and describe clearly the impacts caused by the project implementation to the local community including land occupation and resettlement as commented by the global stakeholder. All supporting documents for the revised PDD have been provided to the validation team for their review.	By checking PDD Version 04 and provided evidences, Validation team confirmed that the data in the PDD is correct. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
07, the resident to be settle up to 3,299 people.			
CAR-14: In the PDD Version 01, section E.1 provided the information of description to invite comments from stakeholder in Tam Quang commune only. Actually, the Project is implemented in total 07 communes.	3.gg	In the revised PDD, under section E.1, the project participants have comprised fully stakeholders from impacted communes: Tam Quang, Yen Thang, Tam Dinh, Tam Thai, Thach Giam, Xa Luong and Hoa Binh. As per Circular 05/2008/TT-BTNMT the relevant stakeholders were identified as Commune People 'committee and Fatherland Front which will be responsible for publishing the project information and its impact to the local people and collecting their opinions/comments in writing and send back the comments to the project owner for his consideration. The project owner, together with electricity consulting company organized meetings with local authorities including Commune People Committee and Fatherland Front and local impacted households to get their opinions/comments in the project implementation in region. Minutes of meeting with all impacted communes were recorded in writing and have forwarded to the validation team for their assessment. Justification on how relevant stakeholders were identified and invited to give their comments have been made in details in section E.1 of the revised PDD.	By checking provided evidences, Validation team confirmed that stakeholders of all 7 communes were invited and informed about the Project as well as gathered comments. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR-15: The electricity tariff used in Excel spreadsheet is 677 VND/kWh, consistently with assumption in the FSR. However, the PDD Version 01 states that the tariff is 647 VND/kWh.	6.q	The electricity tariff of 677 VND/kWh has been used in Excel spread sheet. The typo mistake in table B.5.2, section B.5 was revised in the latest version of PDD.	By checking PDD Version 04 and FSR, Validation team confirmed that electricity tariff used for Investment analysis is 677 VND/kWh. CAR is closed.
CAR-16: In the PDD Version 01, according to Decision 2014/QD-BCN (issued by Ministry of Industry of Vietnam), tariff for similar hydropower projects for dry season was defined from 2.5 - 5.0 US cent/kWh. However, by cross-checking with this Decision, the applied tariff is from 2.0 - 5.0 US cent/kWh. Besides, the Decision 2014/QD-BCN was expired at the time of decision making.	6.q	The mistake in the reference of document has been revised in the latest version of PDD. The Decision No.2014/QD-BCN, which had been invalid at the time of investment decision making, has been replaced by the Decision No.709/QDNLDK. As per Annex I of Decision 709/QD-NLKD dated 13th April. 2004 the electricity tariff for large scale hydropower projects in Vietnam during dry season is 2.5 - 4.5 US cent/kWh and rainy season is 2.0 - 4.3 US cent/kWh. This tariff range has been corrected in the table B.5.2 of the revised PDD.	By checking PDD Version 04 and relevant legislation, Validation team confirmed that the PDD was adequately revised. CAR is closed.
CAR-17: The applied value of Environment tax rate in the PDD Version 01 derived from Circular 42/2007/TT-BTC (issued by Ministry of Finance on 27 th Apr 2007, and come into effective later). However, the investment decision of Management Board was made on 18 th Apr 2007.		Previous environmental tax was wrongly considered in the IRR calculation. The project participants have updated the environmental tax rate and environmental tax level in line with the Circular 05/2006/BT-BTC effective from 19 th January 2006 in the table 5.2 under section B.5 of the revised PDD. Project IRR has been recalculated using the values for the Environment Tax available at the time of the investment decision. The project IRR was increased accordingly. The revised project IRR sheet and the	By checking PDD Version 04 and relevant legislation, Validation team confirmed that the Project applied correct legislation for Investment analysis. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		Circular 05/2006/TT-BTC have been provided to the validation team for assessment review.	
<p>CAR-18: Pursuant to global comments received via UNFCCC website, biggest shareholder of the Project owner is EVN (Electricity Group of Vietnam with the share of 85%). With this share, the Project will face nearly no investment barriers and have many advantages for high electricity tariff, ODA or governmental bond.</p>	6.q	<p>Firstly the project participants want to clarify that EVN only holds 20% of the Project Owner company's shares. The information is substantiated by the Business Registration approved by Hanoi Department of Planning and Investment, And it only makes up around 8% of total investment of the Project. This can be proved by Investment License issued by Nghe An province People Committee. Moreover, the Project owner met many difficulties in securing the bank loan. The project owner started seeking for the loan since 2006 (i.e. Response Letter by Agribank dated 18th Sept 2006), but until March 2008 no final loan agreement was signed. It shows that the Project owner faced serious investments barriers that lead to a very long negotiation process (almost 2 years) before securing loan agreement with BIDV Bank on 8th Mar 2008. No ODA was available to the Project Owner nor has any public funding been used for the project.</p> <p>As explained further, the Project Owner did not get a higher tariff, contrary to what assumed in the comment received by the UNFCCC website. In conclusion, the comment received by the UNFCCC website is based on the wrong assumption that EVN holds 85% of the Project Owner's shares. It has</p>	<p>By checking provided sources, Validation team confirmed that the sources are accessible and reliable; the Investment analysis was correctly calculated. CAR is closed.</p>



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		been demonstrated that EVN only owns 20% of the shares and that the Project owner faced serious investment barriers.	
CAR-19: Pursuant to global comments received via UNFCCC website, the Project cost and Project IRR published in the Project owner website are not similar to parameter applied in the PDD Version 01.	6.q	The project participant would like to make an attention that the IRR in the public website was considering CDM revenue, because in the difference period with the different value of CER price so it was not consistent with the one in GSP PDD.	By checking sources in the comment, as well as responses from PPs, Validation team confirmed that the project IRR was calculated correctly. CAR is closed.
CAR-20: Pursuant to global comments received via UNFCCC website, the Project was invested by EVN. Thus, the electricity tariff can be higher than 4.1 US cent/kWh (decided by EVN – Electricity buyer).	6.q	<p>Firstly, the project is not invested by EVN. It is proved by the Investment License issued for Viet Nam Power Development Joint Stock Company, not for the EVN.</p> <p>Besides, the project participant would like to correct the comment by the GSP that the statement “electricity price for projects invested by EVN are higher than other project” is not true. As a study by the project participant, the price for some of EVN’s projects are actually lower than the price applied in the proposed project activity (677VND/kWh) or less than 4.1 cents/kWh:</p> <ul style="list-style-type: none"> - Thac Ba Hydropower project: price is 530 VND/kWh according to http://images1.cafef.vn/Images/Uploaded/DuLieuDownload/Ban%20Cao%20Bach/TBC_BCB.doc 	By checking provided sources as response, Validation team confirmed that the Electricity applied is correct. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		<p>- Vinh Son and Song Hinh Hydropower project: Price for dry season is 580 VND/kWh; Price for rainy season is 476 VND/kWh according to page 25 of the report</p> <p>http://images1.cafef.vn/Images/Uploaded/DuLieuDownload/Ban%20Cao%20Bach/VSH_BCB.pdf</p> <p>Actually, according to the Regulations on Modalities and Procedures for Power Purchase between the EVN and the Independent Power Producer attached to the Decision 1704/QD-EVNTTD dated 28th June.2005, even an independent power projects with EVN shareholder also must undergo the normal Power Purchase Agreement negotiation steps as prescribed in the Decision. Since the Project owner is not invested by EVN, as wrongly pointed out by the stakeholder comment, there is no reason why the Project owner could have avoided the normal procedure for the negotiation of the PPA (i.e. acquisition of a Power Acceptance, a Connection Agreement, etc.). As a matter of fact, at the time of validation the final PPA for Khe Bo Hydropower Project is not yet finalized and the tariff still is under negotiating. In addition, the Project Owner has already negotiated two other PPAs prior to this project namely Nam Ma PPA and Bac Binh PPA. The actual tariff in the finally signed PPAs are both</p>	



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		lower than 4.1 US cent/KWh, which is the tariff applied by this Project (i.e. the purchased tariff for Nam Ma hydropower project was at 3.8 US cent/kWh and for Bac Binh hydropower project was 645 VND/kwh). It is reasonable and conservative to conclude that the tariff of this Project will be 4.1 US cent/kWh (or 677 VND/kwh).	
CAR-21: Source 13 in the PDD Version 01 cannot be found during Validation stage.	6.q	Source 13 (World Economic Outlook Report) has been provided to the DOE for validation. The 2009 World Economic Outlook Report by International Monetary Fund-IMF is showing that in Vietnam, the inflation for 2007 was 8.35% and it increased to 23.12% in 2008. This reported has been used for justification for scenario of a decrease of 11.02% in total investment cost is unlikely.	By checking PDD Version 04 and provided sources, Validation team confirmed that the information was justified. CAR is closed.
CAR-22: No appropriate justification for the applied value of depreciation of civil works in Investment analysis.	6.q	According to paragraph 5 of the EB Guidelines on Investment on assessment of Investment Analysis" (Version 05, EB 62) in cases where a pre-tax project IRR is calculated depreciation should not be included as an expense in the project IRR calculation. Therefore, the depreciation has been no longer considered in the financial analysis. Please check the revised PDD and IRR calculation for further information.	By checking PDD Version 04 and cross-checking with relevant documents, Validation team confirmed that the Investment analysis was accordingly applied. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR-23: In the Sensitivity analysis, PDD Version 01 states that “It is unlikely for the electricity generation of the Project to increase more than 15.80% because electricity generation was estimated according to historical hydrology data for 44 years (1960 – 2003). However, during Validation stage, no supporting evidence for justification was sufficiently provided	6.r	Electricity generation estimates are based on hydrological data collected over 44 years (1960-2003). Hence an increase in the electricity generation equal to 15.80% (as in the previous version of the PDD) and 11.91% in the revised PDD is therefore very unlikely. The supporting evidence (i.e. the hydrological data) has been submitted to DOE for validation.	By checking PDD Version 04 and provided evidences, Validation team confirmed that the net electricity generation cannot increase more than 11.91%. CAR is closed.
CAR-24: In the Common Practice analysis, PDD Version 01 provided 20 similar projects for discussion. However, by checking available and reliable sources, Validation team found that there are 45 similar projects, which shall be taken into account for discussion Pursuant to global comments received via UNFCCC website, discussion to exclude Se San 3, Se San 3A, Quang Tri, Plei Krong, A Vuong is not correct due to unreasonable application of inflation rate and investment climate in Vietnam	6.z	This is no longer relevant. The Common Practice analysis has been updated according to the latest “Tool for the demonstration and assessment of additionality” Version 7.0.0.	By checking the update Comon Practice Analysis in PDD Version 04 and provided evidences, Validation team confirmed as appropriate. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
<p>CAR-25: Pursuant to global comments received via UNFCCC website, there is a Governmental document to support the implementation of the Project.</p>	6.aa	<p>The question raised by the global stakeholder is that “The Khe Bo project identified as the critical national power generation project in the Decision No.1793/TTg-CN dated 07/11/2006 to supply the electricity rather than profit making, why the project claimed for CDM activity under conditions:</p> <ul style="list-style-type: none"> - The project decided to be invested by Electricity of Vietnam (EVN), EVN is the sole state own entity to manage all the electricity distribution from generation, purchasing, transmission and sale, EVN was approved to use ODA, Governmental bond, budget funding to develop the power generation to ensure of meeting the electricity demand of the country of Vietnam which is currently serious shortage - EVN is the only buyer for all power projects in Vietnam, it is conditions for Khe Bo HPP to utilize EVN’s infrastructure of grid connection point, transmission line. <p>Follow are the response by the project participants: The Khe Bo hydropower project was allowed to be invested by the Decision 1793/TTg-CN dated on 07th November 2006. The content of this Decision is “allowing the Project owner to implement the investment activity like finalizing the FSR, validating the FSR, deciding investment and construction</p>	<p>By checking PDD Version 04 and provided sources, Validation team confirmed that the sources is reliable and confirmed that the Project did not received specific support from Vietnamese Government. CAR is closed.</p>



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		<p>according to the in forced regulation"; besides, it also allowed the project owner to get some similar preferential treatment (like business tax, land free, etc) apply for the hydropower projects in Vietnam. All the supports from government to a hydropower project were already taken into account in the financial analysis of the project activity where applicable.</p> <p>1. The project participants would like to emphasize again that the Khe Bo hydropower project was not invested by EVN as commented by the global stakeholder. Evidences have been provided to the DOE for validation (i.e. Investment License issued for Viet Nam Power Development Joint Stock Company in which EVN is only the shareholder with 20% of total shares). Moreover, this project did not receive any public fund, ODA or any other governmental support as mentioned by the global stakeholder's comment. According to the loan contract for the project. Activity, it can be shown that the loan rate is similar to other projects in Vietnam. The comment from GSP is true that EVN at this time is the only one buyer of electricity. But however, the Khe Bo Hydropower Project is an Independent Power Project and it is the same like other projects in Vietnam that using the existing grid infrastructure because it is</p>	



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		<p>impossible for the investor in any project to invest in the transmission line to each end users. The project participant would like to give a note that all the “favorable conditions” in the GSP comment are applied for all projects in Vietnam. And the important thing is that the investment for the transmission lines in the Grid was not taken into account in the investment cost of the proposed project.</p> <p>2. In conclusion, the proposed project got the same support like other hydropower projects in Vietnam, and all these supports are already reflected in the investment analysis to show that this proposed project is not financial attractive.</p>	
<p>CAR-26: In the table B.5.1, PDD Version 01, ERPA was signed in September 2010. However, by cross-checking with provided documents, Validation team found that ERPA between Project Owner and CER buyer was signed on 25th February 2010.</p>	6.a.b	<p>The date of the ERPA signature (i.e. 25th February, 2010) has been included in table B.5.1 of the revised PDD. Moreover, the ERPA has been provided to the validation team during their desk review.</p>	<p>By checking PDD Version 04 and cross-checking with actual documents, Validation team confirmed that the date in the PDD Version 04 is correct. CAR is closed.</p>
<p>CAR-27: In the PDD Version 01, in Investment analysis, Income tax rate was taken into account. However, by cross-checking with excel spread sheet, this tax was not applied during</p>	6.c.l	<p>Project participants use pre-tax IRR for the investment analysis, following the approach proposed in the “Guidelines on the Assessment of Investment Analysis” (Version 5 EB 62, annex 05) paragraph 11, it is recommended that when a project</p>	<p>By checking PDD Version 04 and excel spread sheet, Validation team confirmed that project IRR was correctly calculated. CAR is closed.</p>



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
calculating project IRR.		IRR is calculated to demonstrate additionality a pre-tax benchmark be applied". Hence Project Participants selected a pre-tax indicator for the investment analysis. Taxes were not included in the actual calculation for the investment analysis. For clarity, income tax has been removed from the table B.5.2 in section B.5.	
CL-1: In the section A.4.3 of the PDD Version 01, the Project will connect to local grid through Ban Ve – Vinh 220kV line with a distance of 3.5km. However, by checking technical documents, Validation team found that the distance of the transmission line is 3.75km.	3.h	Under section A.4.3 of the revised PDD the project participants have revised the information only as "220kV local transmission line".	By checking PDD Version 04, Validation team confirmed as appropriate. CAR is closed.
CL-2: No supporting information to justify that the option I of Investment analysis (Simple cost analysis) is not applicable.	6.l	The Connection Document No 6162/CVEVN-TD dated on 17 th November 2006, which substantiates that the electricity generated by the Project to be sold to the Vietnam Electricity Grid, has been provided to the validation team. As evidenced the Project generates economic benefits from the sale of electricity other than CDM related income. Hence, the Option I (Simple cost analysis) was not appropriate.	By checking PDD Version 04 and provided sources, Validation team confirmed that the information was justified. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CL-3: Justification of net annual electricity generation calculation is not available in the description of Project activity.	6.q	Net annual electricity generation is estimated after deducting 1.5% for transmission losses and self-consumption as per revised FSR in Feb 2007. This value of 1.5% is also consistent with the new Circular 41/2010/TT-BCT dated on 14 th December 2010. These supporting documents have been provided to the DOE for their assessment.	By checking PDD Version 04 and excel spread sheet, Validation team confirmed that project IRR was correctly calculated. CAR is closed.
CL-4: Source 10 in the PDD does not substantiate the provided information for inflation.	6.q	The 2007 Annual report that was issued by the State Bank of Vietnam showing: "Inflation was on a rising trend, from 6.6% in 2006 to 12.63% in 2007" has been provided to the DOE team.	By checking PDD Version 04 and provided sources, Validation team confirmed that the information was justified. CAR is closed
CL-5: In the excel spread sheet of IRR calculation, sources for selection of "Residual rate of fixed assets"; "Exchange rate VND – USD, VND – EUR"; "Price of Carbon" are not available.	6.q	As per the paragraph 3 of the EB Guidelines on the Assessment of Investment Analysis (Version 05, EB 62): Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or if a shorter period is chosen – include the fair value of the project activity assets at the end of the assessment period. As Project IRR was estimated for a full technical lifetime of the project activity (i.e 40 years), which is not a case as pointed out above, therefore the fair value at the end of period assessment is considered to be zero. By considering this guideline, The residual value of fixed assets has been removed away from the revised IRR calculation and PDD for the conformity.	By checking PDD Version 04 and provided sources, Validation team confirmed that the information was justified. CAR is closed.



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
		In addition, the sources for exchange rates and carbon price have been provided in the revised IRR sheet and to the DOE team as well.	
CL-6: Source 16 provided in the PDD Version 01 does not substantiate sufficiently the information of Master Plan VI of Vietnam National Power Development Plan period 2006 - 2015, with vision to 2025.	6.aa	The source 16 that is the Master Plan VI of Vietnam National Power Development Plan period 2006 – 2015, with vision to 2025 has been provided to the validation team for their assessment.	By checking PDD Version 04 and provided sources, Validation team confirmed that the information was justified. CAR is closed.
CL-7: Dates of FSR and revised FSR are not available. The PDD does not indicate the FSR which was approved on 02/04/2007 (provided in the PDD).	6.a.b	The completion date of the first FSR (i.e on 20/10/2005) and of the revised FSR (i.e. on 22/02/2007) has been stated clearly in the table B.5.1 of the revised PDD. Also, in the revised PDD the project participants have stated clearly that the project approval was made based on both the first FSR in 2005 and the revised FSR in 2007. The evidence for this statement is found in the Appendix of the Project Approval Decision issued by the Ministry of Industry on 02/04/2007.	



APPENDIX B: COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

BUREAU VERITAS CERTIFICATION published the project documents on the UNFCCC CDM website (<http://cdm.unfccc.int>) on 17/02/2011 and invited comments within 18/03/2011 by Parties, stakeholders and non-governmental organizations. Comments were received for the CDM project "Khe Bo Hydropower Project". The comments received for the said CDM project are compiled below in tabular format.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]
1	Lan Huong lanhuongcdm@gmail.com	06/03/2011	<p>Compilation of submitted inputs: Regarding the CDM activity of 100MW Khe Bo Hydropower Project, I have some comments:</p> <p>National policy: Khe Bo HPP developed by Vietnam Power Development Joint Stock Company with the major share of Electricity of Vietnam (EVN) for 85.7% from EVN.</p> <p>The Khe Bo project identified as the critical national power generation project in the Decision No.1793/TTg-CN dated 07/11/2006 to supply the electricity rather than profit making, why the project claimed for CDM activity under conditions:</p> <ul style="list-style-type: none"> - The project decided to be invested by Electricity of Vietnam (EVN), EVN is the sole state own entity to manage all the electricity distribution from generation, purchasing, transmission and sale, EVN was approved to use ODA, Governmental bond, budget funding to develop the power generation to ensure of meeting the electricity demand of the country of Vietnam which is currently serious shortage. - EVN is the only buyer for all power projects in Vietnam, it is favorable conditions for Khe Bo HPP to utilize EVN's infrastructure of grid connection point, transmission line. <p>The Priority of EVN can be verified by the Governmental Official Portal http://www.chinhphu.vn/portal/page?_pageid=517_34682326&_dad=portal&_schema=PORTAL&_piref517_34682358_517_34682326_34682326.docid=94635&_piref517_34682358_517_34682326_34682326.detail=1</p> <p>Project IRR CDM developer requested to clarify the difference in the PDD and the public website of Vietnam Power Development Joint Stock Company for investors:</p>



Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]
			<p>In the public web state of Khe Bo HPP:</p> <ul style="list-style-type: none"> • Economic Indicator: B/C = 1.27, NPV = 470.3 Bill. VND, FIRR = 12.8% • Financial Indicator: B/C = 1.14, NPV = 277.1 Bill. VND, FIRR = 12.9% • Project Cost: 2,453 Bill. VND <p>In the PDD</p> <ul style="list-style-type: none"> • Project Cost: 2,146.928 Bill. VND • Project IRR with CDM 12.39% • Project IRR without CDM 10.71% <p>Why the figure applied in the PDD which is the IRR was lower than the public website of the Company stated, the Company stated the information followed joint stock Company's law which used for investors, it was the law broken without shareholders meeting to revise the project IRR with stated information.</p> <p>The published data to be obtained at http://vnpd.com.vn/index.php/dau-tu-phat-trien/thuy-dien-khe-bo/66-giithiu-d-an-thy-in-khe-b</p> <p>Feed in Tariff</p> <p>In the PDD, section B.5, the PDD developer stated that "the IRR is calculated using a fixed electricity price of 4.1 US cent/kWh, according to national regulations and guide rules. The price will be determined by a Power Purchase Agreement (PPA) between the PO and EVN. Many Hydropower projects in Vietnam were executed with an agreed PPA showing lower tariff than the one of the proposed Project, i.e. 4.1 US cent/kWh. It is unlikely that EVN would agree to sign a PPA with a higher tariff, based on historical data and PPA available" however, in the table B.5.2 in the PDD stated "The tariff assumed in the FSR investment analysis is 647 VND/kWh (approximately 4.1 US cent/kWh), which is consistent with the tariff set by the Decision 2014/QD-BCN Ministry of Industry for similar projects (i.e. 2.5 ÷ 5.0 US cent/kWh for dry season and 2.5 ÷ 4.7 US cent/kWh for rainyseason)"</p> <p>For conservative calculation for CDM project, in case of the project is not to go in a PPA, the highest tariff shall be applied followed the regulation of the Government of Decision 2014/QD-BCN issued by Ministry of Industry that 5 USD cent /Kwh for dry season and 4.7 USD cent /Kwh for rainy season, moreover, Khe Bo HPP is the EVN invested project, so the tariff applied for the project decided by EVN, several EVN projects got a higher tariff of 4.1 cent USD/kwh</p>



Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]
			<p>Common Practice The PDD developer claimed for a distinction between the proposed project and Se San 3 and Se Sen 3A based on investment, however, the link provided by the PDD developer shown that Se San 3 and Se Sen 3A started in 2002/2003 and the proposed project started in 2007, as the PDD developer claimed for inflation rate 8.35% and 23.12% for the year 2007 and 2008 in the PDD, page 17, therefore, the comparison of investment cost of the year 2002/2003 compared to 2007 was not correct.</p> <p>Among the identified similar projects “Project 5 (Quang Tri), 6 (Plei Krong), 7 (A V&#432;&#417;ng), 8 (Song Ba Ha) and 10 (Buon Tua Sah)” are similar environmental investment and invested by EVN but were in operation without CDM, the proposed project is the same structure under EVN, what is the distinction, in the situation that EVN can use Governmental bond, ODA and public fund...for all their projects</p> <p>Social impact The PDD was not transparent to describe the social impact, the project cause a serious impact to the community, the project took over 100.96 Km2 of land, and there were seven communes and towns to be removed including 0.9 km national road No. 7, the resident to be resettled up to 3,299 people.</p>

Validation team has already investigated according to comment received. During Validation stage, 06 CARs were issued according to all contents of comments received.

Please refer content of **CAR-13, CAR-18, CAR-19, CAR-20, CAR-24** and **CAR-25** in the Validation protocol.

After reviewing PP's responses and cross – checking with provided evidences, Validation team confirmed that all evidences are from accessible and reliable sources and all information are justified correctly.

Bureau Veritas Certification thus requests registration of Khe Bo Hydropower Project as CDM project activity.