VALIDATION REPORT

ENERGY AND ENVIRONMENT CONSULTANCY JOINT STOCK COMPANY

DAK PONE HYDROPOWER PROJECT

Report No: 8000372873 – 09/89

Date: 2011-06-02

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Final Approval by: R. Winter	Organisational unit: TÜV NORD JI/CDM Certification Program
Client: Energy and Environment Consultancy Joint Stock Company	Client ref.: Mr. Tran Minh Tuyen
Summary:	☒ positive validation opinion ☐ negative validation opinion

Energy and Environment Consultancy Joint Stock Company has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Dak Pone Hydropower Project" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation 14 Corrective Action Requests (CARs) and 4 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (Vietnam) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of Vietnam vide the Letter of Approval dated 2008-06-30 and from DNA of Switzerland dated 2010-07-23.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 241,790 tCO_2e are most likely to be achieved within the (1st renewable) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Report No.: 8000372873 – 09/89	Subject Group: Climate Protection
Report title: Dak Pone Hydropower Project	
Work carried out by: Martin Saalmann, Yanwei Chen, Tran Viet Hoang, Stefan Winter, Pham Van Trung	
Final technical review by: Rainer Winter	Local technical review by -

Date of this revision: -	Rev. No.: 1	Number of pages: 127

Indexing terms

Climate protection
Kyoto Protocol
CDM
Validation

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Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
PDD	Project Design Document
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability 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 seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual/VVM/, carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 1.1, EB 51 & version 1.2, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP cannot be held liable by any entity for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

The validation is not meant to provide any consulting to the project participants. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Dak Pone Hydropower Project		
Project size	☒ Large Scale ☐ Small Scale		
Project Scope *(according to UNFCCC sectoral scope numbers for CDM)*	☒	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☐	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)
	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☐	13	Waste handling and disposal
	☐	14	Afforestation and Reforestation
	☐	15	Agriculture
Applied Methodology	*ACM0002 Version 12*		
Technical Area(s)	S: Renewables – Hydro		
Crediting period	☒ Renewable Crediting Period (7 y) ☐ Fixed Crediting Period (10 y)		
Start of crediting period	2011-03-01		

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Vietnam	PC3 – Investment Joint Stock Company
	Vietnam	Energy and Environment Consultancy Joint Stock Company
Sponsor party	Switzerland	Vietnam Carbon Assets Ltd.

2.3 Project Location

The details of the project location are given in table 2-3:

Table 2-3: Project Location

No.	Project Location
Host Country	Vietnam
Region:	Mang Canh and Dak Long Commune, Kon Plong District, Kon Tum Province
Office address:	PC3 – Investment Joint Stock Company: 78A Duy Tan, Hai Chau District, Da Nang City, Vietnam
Dak Pone project	
Latitude (power house):	14°34'00''
Longitude (power house):	108°18'21''
Latitude (dam):	14°34'24"
Longitude (dam):	108°18'19"
Dak Pone expansion project	
Latitude (power house):	14°37'07"
Longitude (power house):	108°17'27"
Latitude (dam):	14°36'49"
Longitude (dam):	108°17'53"

2.4 Technical Project Description

The proposed project activity is the implementation of two hydro power projects with a total capacity of 15.6 MW. The first project has an installed capacity of 14 MW (Dak Pone project) and the second will utilize 1.6 MW (Dak Pone expansion project).
The projects are of run-of-river type. Each project includes a small reservoir, intake canals, penstocks and power stations.
The produced electricity is supplied to Vietnamese National Grid.

The emission reductions are due to the replacement of electricity supplied by the National Grid of Vietnam.

The technical key data are provided in table 2-4a (Dak Pone project) and 2-4b (Dak Pone expansion project) below:

Table 2-4a: Technical data of Dak Pone project activity

Parameter	Unit	Value
Turbine		
Manufacturer	-	Dong Fang Electric Corporation, China
Type	-	Pelton, vertical axis
Number of units	-	02
Capacity	MW	7.292
Rated net Head	m	227.75
Turbine discharge	m^3/s	3.63
Rated speed	rpm	428.6

Parameter	Unit	Value
Generator		
Manufacturer	-	Dong Fang Electric Corporation, China
Type	-	Synchronous, 3 phases, vertical axis
Number of Units	-	02
Capacity	MW	7
Rated Voltage	kV	6.3

Table 2-4b: Technical data of Dak Pone expansion project activity

Parameter	Unit	Value
Turbine		
Manufacturer	-	Dongfang Electric Corporation of China
Type	-	Francis with horizontal shaft
Number of units	-	02
Capacity	MW	0.847
Rated net Head	m	75.3
Turbine discharge	m^3/s	1.27
Rated speed	rpm	1000
Generator		
Manufacturer	-	Dongfang Electric Corporation of China
Type	-	Synchronous, 3 phases, horizontal shaft
Number of Units	-	02
Capacity	MW	0.8
Rated Voltage	kV	6.3

3 METHODOLOGY AND VALIDATION SEQUENCE

3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- A desk review of the PDD/PDD/ submitted by the client and additional supporting documents with the use of customised validation protocol /CPM/ according to the Validation and Verification Manual /VVM/
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

The sequence of the validation is given in the table 3.1 below:

Table 3.1: Validation sequence

Topic	Time
Assignment of validation	2008-12-16
Submission of PDD for global stakeholder commenting process	2009-03-25
On-site visit	2009-04-29 to 2009-04-30
Draft reporting finalised	2009-07-27
Final reporting finalised	2010-12-20
Technical review on final reporting finalised	2011-03-04

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 3 additional team members, were appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence	Technical competence [4]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Martin Saalmann	TÜV NORD Cert	TL	SA	☒	-	☐	☒
☐ Mr. ☒ Ms.	Grace Chen	TÜV NORD China	TM	E	☒	-	☐	☐
☒ Mr. ☐ Ms.	Tran Viet Hoang	TÜV NORD Vietnam	TM	TE	☐		☒	☐
☒ Mr. ☐ Ms.	Pham Van Trung	TÜV NORD Vietnam	-	T	☐		☒	☐
☒ Mr. ☐ Ms.	Stefan Winter	TÜV NORD Cert	TM	A	☒	S	☐	☒
☒ Mr. ☐ Ms.	Rainer Winter	TÜV NORD Cert	TR[3]/ FA	SA	☒	S	☐	☒

[1)] TL: Team Leader; TM: Team Member, TR: Technical review; FA: Final approval

[2)] GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

[3)] No team member

[4)] As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

Certificates of appointment for the above mentioned team members are enclosed in annex 6 of this report.

3.4 Consideration of Public Stakeholder Comments

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments were received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

3.5 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements that a CDM project is expected to meet;
- It ensures a transparent validation process where the validating entity will document how a particular requirement has been validated and the result of the determination.

The validation protocol as described in Figure 1.

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	***Validation Team Comment***	***Reference***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.*	*Gives reference to the information source on which the assessment is based on*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.*	*In case a corrective action or a clarification the final assessment at the final validation stage is given.*

Figure 1: Validation protocol tables

The completed validation protocol is enclosed in Annex 1 to this report.

3.6 Review of Documents

The published PDD (version 1) and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Follow-up Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives Project consultant	- Chronological description of the project activity with documents of key steps of the implementation. - Current status of plant design

Interviewed Persons / Entities	Interview topics
	- Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project - Host Government Approval - Approval procedures and status - Monitoring and measurement equipment and system. - Financial aspects - Crediting period - Project activity starting date - CER allocation / ownership - Baseline study assumptions - Additionality - Sustainable development issues - Monitoring - Analysis of local stakeholder consultation - Roles & responsibilities of the project participants w.r.t. project management, monitoring and reporting - National Legislation - Editorial issues of the PDD
Official from EVN Energy Institute	- Emission factor calculation
Stakeholders	- Stakeholder involvement procedure - Impacts of the project - Opinion to the project

A comprehensive list of all interviewed persons is part of section 7 ‘References’.

3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive validation opinion).

4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised**:**

Table 4-1: Summary of CARs, CLs and FARs issued

Validation topic [1)]	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) - Project specification - Technical project description - Participation - Contribution to sustainable development - PDD editorial aspects - Technology to be employed	4	1	-
Project Baseline, Additionality and Monitoring Plan (B) - Application of the Methodology - Project Boundary - Baseline identification - Calculation of GHG emission reductions Project emissions Baseline emissions Leakage - Additionality determination - Monitoring Methodology - Monitoring Plan - Project management planning	10	3	-
Duration of the Project / Crediting Period (C)	-	-	-
Environmental impacts (D)	-	-	-
Stakeholder Comments (E)	-	-	-
SUM	**14**	**4**	**-**

[1)] The letters in brackets refer to the validation protocol

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below.

Finding	A1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some issues with demonstration regarding benefit to sustainable development: The percentage of annual tax in total GDP of the Kon Tum Province is not calculated correct.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The percentage of annual tax in total GDP of the Kon Tum Province has been recalculated in section A.2		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Ok, the calculation has been revised. The raw data has been verified by means of checking the Statistical Yearbook of Vietnam. Figure is confirmed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding	A2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In A.4.3, the generator efficiency of Dak Pone is inconsistent with device purchase contract.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The generator efficiency of Dak Pone has been revised in the updated PDD.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Ok, the generator efficiency is in compliance with information included in the equipment purchasing contract./EPC/ This has been confirmed by means of document check. PDD has been revised appropriately. CAR is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding	A3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	PDD section A.4.3 should be revised according to latest PDD guideline. E. g. monitoring equipments and its location should be indicated.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The monitoring equipment and the location have been added in the section A.4.3 and table 1 of the revised PDD.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Ok, the PDD has been revised according to the latest guidance. Additional information has been incorporated to provide a better view on the activity. CAR is assessed as closed out.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding	A4		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During interview TÜV NORD received information that an entity from Annex 1 has been identified as project participant. The PDD needs to be revised and LOA shall be provided.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Information of participant (Vietnam Carbon Asset) has been added in Annex 1 of the PDD. The LoA Host Country and LoA from DNA of Switzerland are attached herewith.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The LOA from Switzerland has been sent as scanned version to TÜV NORD by the PP. The unique reference is G514-3487. It is confirmed by means of checking the document, that Switzerland ratified the KP, the participation is voluntary and that the project title is precisely given in the above mentioned document and consistent with relevant other documents like MOC, HCA, PDD. It could be verified that the LOA is unconditional with respect to VVM paragraph 45 a), b) and d). The Federal Office for the Environment FOEN – Climate Unit serves as the DNA of Switzerland. This has been cross-checked by means of visiting the UNFCCC website. The LOA is signed by the authorized person, so the authenticity of the LOA is confirmed. In conclusion the LOA is fully in line with the requirements as provided in VVM paragraphs 45 – 48.		

Finding	A4
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	In B.5, step 1, the argumentation to exclude alternative 2 is not sufficient. The fact that there is no fossil fired power plant with equivalent power output included in Master Plan of Electricity Expansion for period of 2006-2015 with perspective to 2025 - EVN (Master Plan VI) does not necessarily eliminates the possibility of such plant being included in provincial level master plan or new project being proposed by some investor to related authority.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The argumentation to exclude alternative 2 has been corrected. According to the Electricity Law, an investment activity in electricity generation must be in line with the list of potential power generation projects listed in the latest Master Plan. In the point of view for electricity development by Ministry of Industry and Trade the common capacity of thermal power unit next 10 year is 300MW and in the future the higher capacity (600MW and higher) will be chosen for reducing the investment cost. Thus, the construction of fossil fuel power plants by the project proponent is not plausible. For more detail, please find in the revised PDD.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The electricity law and the statement of the Ministry of Industry have been checked. Information provided by the PP above can be confirmed. Based on experiences by TÜV NORD a fossil fuel fired power plant is the rural area, where the project activity is located, can be excluded since the costs of transportation of fossil fuels is to high and an operation of 15.6 MW power plant based on fossil fuels is not cost efficient under this condition. Hence, the validation team concluded that the exclusion of alternative 2 is appropriate. CAR B1 is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding	B2		
Classification	☒ CAR	☐ CL	☐ FAR

Finding	B2
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The demonstration to exclude option b. for deriving benchmark somehow contradicts with later section, where the expected rate of return on equity for investors in Vietnam is estimated and used to calculate benchmark WACC.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This section has been revised in the PDD. At first, the project participant applies "Estimates of the cost of financing and required return on capital" approach as introduced in the additionality tool (Version 05.2), page 6, to determine the required return on equity or sector specific cost of equity. The well-known Capital Asset Pricing Model (CAPM) to simulate a sectoral rate of return on equity for electricity generation sector in Vietnam has been run. The CAPM simulation result shows that expected cost of equity for electricity generation project type in Viet Nam in 2005 is 20.32%. As instructed further in para 12, of " Guidance on Assessment of Investment Analysis", Annex 58, EB 51, "Local lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR", thus the project participant applies the WACC equation to estimate the benchmark for this project IRR.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The approach followed is reflecting the guidance given in latest additionality tool from EB 39, Annex 10 paragraph 5. The values are correctly calculated and are fully in compliance to the guidance provided in EB 51 Annex 58. An assessment of the benchmark applied and the calculation approach is provided in Annex 3 to this report. Compared to the published PDD the required return on equity has been slightly reduced to 20.32 % instead of 22 % which ensures a more conservative approach. Furthermore the average revenue enterprise tax has been increased since the project lifetime has been increased compared to the published PDD which appropriate. CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some issues with benchmark calculation: 1. Sectoral characteristics should be considered when calculating Expected rate of return on equity for investors in Vietnam. 2. The total investment for Dak Pone Expansion is from FSR dated 2007, which is after the investment decision thus should not be used.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the cor-*	1. To reflect that the approach is complied with the EB rules, the financial analysis has been rewritten. Please see		

Finding	B3
rective action taken in details.	Section B.5 of the revised PDD. We clarified the approach is that "*Estimates of the cost of financing and required return on capital" as introduced in the additionality tool (version 05.2)* page 6, Annex 10, EB 39. As instructed further in para 12 of *Guidance on Assessment of Investment Analysis (version 03)*, Annex 58, EB 51, "*Local lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR*". Thus the WACC is applied to estimate the *required return on capital* as a benchmark for this project IRR. A CAPM model for determining the rate of return on equity in electricity generation sector in Vietnam has been simulated to provide a standard sectoral rate. The simulation result is presented in Section B.5 of the revised PDD. For the cross-check purpose, an interview with an independent financial expert in Vietnam has been made to find the actual rate of return on equity for the electricity generation projects that are operated stably. The survey result conducted by the independent expert shows that the average actual rate of return on equity for those projects are around 29.3% as of 2008. An interview with another independent financial expert in Vietnam also showed that the WACC analysis is a common practice in conducting the financial analysis for power generation investments in Vietnam. 2. The total investment for Dak Pone Expansion has been referred to Initial Feasibility Study dated October 2004, which is the latest data available at time of making the investment decision.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	1. Ok, the explanation is acceptable. The conformity with EB regulations and guidance is ensured. 2. Ok, it is ensured that the data available at the time of investment decision is applied. The value is slightly lower than what is expected in 2007. This leads to a more conservative approach. TÜV NORD verified the correctness.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B4		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The investment decision was made in Feb 2005; at that time the FSR of Dak Pone Expansion was not finished and the FSR of Dak Pone (dated June 2004) does not contain information of Dak Pone Expansion. The basis of investment decision for Dak Pone Expansion should be justified.		

Finding	B4
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Before presenting the final FSR in 2007, the initial FSR was submitted to the Project Owner (PO) by consultant in October 2004. So the Investment decision was based on this initial version. The document is attached herewith
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	An abstract of the initial FSR for the expansion project has been submitted. The authenticity of the document is confirmed since it is signed and stamped by the consulting company. The document includes information about the installed capacity, location, total electricity supply and total investment. The figures have been compared to the information in the PDD and XLS sheets. No deviation has been observed. The values are correctly applied. In addition TÜV NORD checked the final feasibility study report from 2007 to check the differences. The only deviation observed is a higher total investment from 30,776,895,000 VND to 32,754,148,000 VND due to the adjusted contract for dam construction./FSR/, /IFS/ It should be noted that the lower value has been applied since it is the basis for the CDM management decision. TÜV NORD concluded that the CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding	B5		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Investment decision for Dak Pone Expansion is in Feb 2005 Construction started in October 2007. Whether the data used for investment analysis at the time of investment decision is still valid at the time of construction should be justified.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	According to the Final FSR, the total investment cost in 2007 was increased 6.5% in compare with the initial investment cost in 2004. So the investment cost applied at time of investment decision is still valid at time of construction.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Both feasibility studies have been checked. TÜV NORD could confirm that the basic parameters like total electricity supply, capacity etc didn't change. It could further confirmed that the total investment has been increased due to adjusted construction contract for the dam/FSR/, /IFS/, /CCA/.		

Finding	B5
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B6		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some issues with project IRR calculation: 1. Since the period for investment assessment (20 yrs) is shorter than expected operation of the project activity (30 yrs), the fair value of the project activity assets should be included as a cash inflow at the end of the assessment period. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets. 2. Data source of all key assumptions should be clearly referenced. Only those available at the time of investment decision can be used in the analysis. 3. The possibility of key sensitivity parameters to vary within the selected range (10% according to published PDD) should be discussed.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1. The period for investment assessment was changed to equal the expected operation of the project activity in revised Excel sheet. Because the operation lifetime reflects the lifetime of equipment so the fair value of the assets would not take into account in the financial analysis. 2. The references for data source of all key assumptions have been added. For more detail, please find in the revised PDD. 3. The discussion of the variations within the selected range (±10%) has been added in the Sensitivity analysis at section B.5, sub-step 2d. of the revised PDD		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	1. The financial assessment is conducted for a period of 40 years. It is reasonable that neither a residue value nor fair value nor book value is considered as cash inflow in the last year, since the period of analysis is higher than usually applied for hydro power projects. Further it should be noted that the longer period has a positive impact on the IRR calculation which leads to more conservativeness. Response and action taken is assessed as appropriate. 2. Ok, the sources have been provided. A detailed assessment of all parameters is provided in Annex 3 to this report. 3. Ok, a discussion is provided. In addition the PP calculated the increase/ decrease of parameters when the benchmark may be crossed. The explanations/ justifications provided are assessed as appropriate. Relevant sources have been checked by the validation team and could be confirmed.		

Finding	B6
	CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding	B7		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some issues with the demonstration of CDM consideration: 1. The timeline of Dak Pone and Dak Pone Expansion should be listed and discussed separately so as to avoid confusion. 2. Since the CDM investment decision was made by PC3 in 2005 and the project ownership changed from PC3 to PC3 Investment Joint Stock Company in 2008, it should be evidenced that the ownership change does not affect validity of the decision.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1. Timeline of Dak Pone and Dak Pone Expansion are separated in section B.5, sub –step 4b. Discuss any similar options that are occurring of the revised PDD Version 2.0. 2. The PC3 transferred Dak Pone hydropower project for Small and Medium Hydropower projects Management Board which is the authorized of PC3, so the Board became the project owner officially. After that, Small and Medium Hydropower project Management Board was changed type to PC3 – Investment JSC in 2008. Therefore, the validity of decision does not affect. The evidences of transferral project to the Board and changed type will be attached with revised PDD Version 2.0.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	1. Will be finally assessed upon receipt of more/ translated evidences. 2. The explanation provided is incomprehensible and shall be revised. After this an assessment can be done.		

Finding	B7
Corrective Action #2	1. The two sub-hydropower plants were developed as one investment project. It was authenticated in the Investment License issued by the local authority. Therefore, the investment decision and CDM and investment application procedures for this proposed project always including these two sub-plants. The only difference is in the construction milestones later. 2. The Small and Medium Hydropower Project Management Unit belongs to PC3 and is authorised to represent PC3 (see the Business registration of Small and Medium Hydropower Management Board). Therefore, the decision made by PC3 for this proposed project is still valid. Later, the PC3 Investment JSC was founded and Power Company No3 is one of the shareholders. The decisions for the investment project and the CDM are still valid then. Please see more detail in the revised PDD.
DOE Assessment #2	1. The investment license has been reviewed. The investment license was issued by the provincial people's committee of Kon Tum province on 2008-04-04 which indicated the total installed capacity of 15.6MW for both Dak Pone and Dak Pone expansion. The investment decision and CDM consideration documentation had been made considering the two projects as a whole. The construction contracts for Dam A and Dam B were signed on 2005-02-25 and 2007-10-11 respectively. Thereby, it is assessed that Dak Pone and Dak Pone expansion was approved as one investment project and one timeline of key events for the two projects can be considered as sufficient. 2. The business registrations of PC3, Management Board of the Small and Medium Hydropower Plant Projects (Board) and PC3-Investment Joint Stock Company were checked. The investment decision was first made by PC3. After that, PC3 authorized the Board to become the owner of the proposed project. The business registration of the Board was issued on 2002-10-09 by the provincial department of planning and investment of Da Nang province. Reviewing the business registration indicated that the Board was the legally authorized representative of PC3.[/BR/] And then, it was decided that the Board changed to PC3-Investment Joint Stock Company via the business registration issued on 2008-01-02 by the provincial department of planning and investment of Da Nang province. According to this business registration, PC3 is the main shareholder in the company. Therefore, it could be confirmed that the investment decision for the proposed project remains valid during the course of project implementation.

Finding	B7
	CAR is closed
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B8		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some issues with emission reduction calculation: 1. The project emission is not considered in ER calculation but it is considered in B.3 and in monitoring plan. 2. It should be justified that the data used for EF calculation is correct and conservative.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1. That section has been revised. Because, according to Version 12 of ACM0002, for hydropower plant, PE = PE_y + $PE_{FC,j,y}$. The power density of Dak Pone (1.400 W/m^2) and Dak Pone – Expansion (32 W/m^2) hydropower plants are greater than 10W/m^2. Thus PE_y = 0. $PE_{FC,j,y}$ represent the CO_2 emission due to fossil fuel consumption in the year for the operation of the backup power equipment. The volume of fossil fuel used for power backup is very small so for simple, in the ex ante ER calculation $PE_{FC,j,y}$ is assumed as zero. For more detail, please find in the revised PDD. 2. All the data using for EF calculation in the PDD and in Annex 3 are based on the contract between VNEEC and the Institute of Energy which is belong to Electricity of Vietnam. On August 2008, the Power System Development Department, Institute of Energy, Vietnam Electricity - EVN issued and provided the project participant with the "Annex 1: Information on Power plants connected to the national electricity grid in 2005, 2006 and 2007". In this document, fuel consumption data was provided for each power plant/unit, where it had not previously been available. Consequently, the EF calculation was conducted using the „Tool to calculate the emission factor for an electricity system", using a Simple OM calculation, option A, as has been detailed in the revised PDD. All the data are confirmed and sealed by Institute of Energy so they are correct. Institute of Energy is an Energy Research and Planning Institute established on 1 January 1989 based on the integration of the Energy and Electrification Institute and Power Research Institute pursuant to the Decision No. 1379 NL/TCCB dated 05 December 1988 by the Ministry of Energy (now it is Ministry of Industry and Trade). Institute of Energy is a focal Body and Consultant for the Government and the Power Sector in formulation of national strategies and policies on energy and electricity development		

Finding	B8
	Institute of Energy has: - Science and Technology Registration dated 03-01-2003 by Ministry of Science, Technology and Environment. (Registration No. A-041). - License for Electricity Operation No. 134/GP-BCN dated 23 January 2003 by Ministry of Industry. - Certificate TCVN ISO 9001 : 2000 / ISO 9001 : 2000 No. HT 821.04.34 dated 18/11/2004 issued by Vietnam Certification Services. More information about Institute of Energy can be seen at : http://www.ievn.com.vn/Infor.aspx?CategoryId=1098&InforID=1102&LanguageId=2 Institute of Energy is an Energy Research and Planning Institute in Vietnam, with access to the most recent and accurate data related to energy and electricity production in Vietnam. Further detail regarding their credentials can be provided separately, upon request. In an older data source issued by EVN in 16 May 2008, only the electricity generation and efficiency of each power plants are available. The fuel consumption data is not available for each power plant. The EF value using this data source must be calculated by using Option B of the OM portion.. The calculated EF value according to the source in May 2008 is 0.5355 tCO2/MWh. So the application of the lower EF value (0.5104 tCO2/MWh) from the latest source available at time of submitting Dak Pone hydropower project to the DOE is conservative. The calculation of EF values and sources are attached with the revised PDD.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	1. Ok, the explanation is appropriate and hence, accepted. 2. The EF calculation has been verified. The validation team recalculated the figures provided according approach stipulated by the grid emission factor tool. Further the raw data has been confirmed by the Institute of Energy which belongs to the Vietnamese grid operator EVN. An interview with the responsible person has been conducted who confirmed that appropriateness of the values. Finally TÜV NORD accepted the EF since it is the lowest of all registered projects in Vietnam. CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding	B9		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The monitoring plan of Dak Pone and Dak Pone Expansion should be described separately. Eg. it should be indicated in B.7.1. whether the EGy is measured by joint meter or separate meter; TEGy in B.7.1. is only for Dak Pone not considering Dak Pone Expansion.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Because of Dak Pone Hydropower project is the group of 2 sub-hydropower plants and belong to only one project owner. Besides, both Dak Pone and Dak Pone Expansion use the same transmission line to transfer the generated electricity to the grid at the connection point, so the monitoring plan could be applied for both of power plant. The electricity of Dak Pone and Dak Pone Expansion will be supplied to the grid through the double transmission line. Thus, the total of electricity generated will be measured by the main metering system at Kon Plong transformer station. The parameter TEGy in Section B.7.1 has been removed completely according to methodology ACM0002. Since the power density is higher than 10 W/m² it is not necessary to monitor this parameter.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The technical layout of the hydro power plants and the power connection diagram has been checked by the validation team. Furthermore on-site visit has been conducted and interviews with the PO were done. The figure provided in Annex 4 to the PDD showing the meter locations and transmission lines could be confirmed. Obviously a separate metering for each project is not possible. Considering this TÜV NORD accepted that joint metering of the two generators is appropriate, since the projects belong to the same owner and a separation of electricity supply is not necessary to derive the emission reductions. Furthermore it is confirmed that measuring TEG_y is not necessary and exclusion is fully in line with the methodology ACM0002. CAR is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding	B10		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During the course of validation the version of the methodology and the grid tool have been changed. To ensure accurateness and completeness PDD needs to be revised.		

Finding	B10
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The revision of the PDD has been conducted. All relevant sections, especially B.6. have been revised reflecting the latest approach.
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Ok, TÜV NORD has carefully checked the revised PDD and compared the content with the new version of the methodology and tool. It is confirmed that necessary changes have been conducted. It could also be verified that the changes do not have any impact on the grid emission factor or applicability of methodology. The only changes refer to the theoretical approach. CAR is closed out.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	A1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The coordinates provided in the PDD are associated to the dams. However, it is requested to provide the coordinates for the power house as well, backed-up with documented evidences.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The coordinates of the power house have been incorporated in the PDD for Dak Pone project.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Technical Design for the transmission line from Electricity Construction and Survey No. 1 (ECC1) has been checked and the coordinates of the power house of Dak Pone project are confirmed. However the coordinates of Dak Pone Expansion are missing		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The coordinates of dam and power house of Dak Pone and Dak Pone Expansion are added in the revised PDD. The evidences are also attached herewith.		
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Ok. The coordinates of the dams and power houses have been provided in Section A.4.1.4 of the revised PDD for both Dak Pone and Dak Pone expansion. The Annex 1 to the Technical Design/TD/ has also been provided for the validation team to review and confirm the coordinates. CL is closed.		

Finding	A1
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Figure 3 in PDD section B.3 is not clear. Types of mass/energy flow should be clarified. i.e. instead of using one line type for all flows, different line types can be used to represent water, mechanical energy, electricity, etc., in order to avoid ambiguousness		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Figure 3 in PDD has been used different line types in order to clear types of mass/ energy flow. Please, see more detail in revised PDD.		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Ok, the figure has been appropriately revised providing a clear picture of the proposed project, the boundary and mass flows. The information provided have been confirmed by means of interview/IM01/, /IM04/, on-site visit and feasibility study report/FSR/.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	B2		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Project emission from backup power generation of hydropower plant is considered in Table 6 of PDD section B.3. It should be clarified what the backup power generation is and how it results in CO_2 emission.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The project emission from backup power generation is estimated based on the volume and type of fossil fuel consumed by the backup system in year. It is calculated as per the latest version of the "Tool to calculate project or leakage CO_2 emission from fossil fuel combustion". For more detail, please find in section B.6 of the revised PDD Version 2.0		

Finding	B2
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	Not OK, the clarification requested is not fully answered: 1. What is used as back-up system (e.g. diesel gen)? 2. What is the technical specification of back-up system? 3. What is the purpose of the back-up system? 4. Are any legal requirements of the back-up system?
Corrective Action #2	1. The back-up system used is the diesel generator 2. The technical specification of diesel generator is indicated as follow: The model: M-P150 The rated power: 138 KVA The rated voltage: 400/230 3. When the all the generation units of the power plant are shut down and the transmission line from grid is cut off, the owner will use the back -up generators to generate electricity for internal use in the plant. 4. There is not any existing legal requirement about using the back-up system. The Project Owner uses the diesel generators as volunteer. The back-up system is only used in the emergency case to ensure the implementation of the power plants. Using of the back-up diesel generators or not depends on the project owner.

Finding	B2
DOE Assessment #2	1. According to the revised PDD, the back-up system refers to the back-up diesel generator. 2. The technical specifications of the back-up diesel generator have been confirmed by checking the photos of its nameplate provided by the project participant. During on-site visit this information was not available. 3. Back-up diesel generators for internal power supply in case of grid shut downs in common practice in Vietnam as recommended by many third party engineering consultants. The chance of power supply interruption from both sources, i.e. from the proposed project activity and from grid supply is almost unlikely to happen during operation. 4. Based on local expertise and web surveys of official governmental websites, it could be confirmed that there is no legal requirements for the use of back-up diesel generator for hydropower plants in Vietnam. The emission from the back-up diesel generator is not required by the applied methodology. However, this is monitored by the project participant to ensure it is below 1% as addressed in Section B.6.3 of the revised PDD. CL is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some issues with monitoring parameters: 1. $FC_{i,j,y}$ is included as monitoring parameter. This should be justified. 2. In B.7.2 it should be clarified whether the back-up system is backup meter or not. If so, meter location should be clearly indicated.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1. In order to calculate the emission, the amount of Fossil fuel has to be monitored. So FCi,j,y (the fossil fuel is used in the power back up) is included as monitoring parameter in section B.7.1. For more detail, please find in revised PDD. 2. In the monitoring plan, the backup system is backup meters. The location of back up meters has been indicated in the Annex 4 of revised PDD.		

Finding	B3
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	1. Ok, the explanation is acceptable. With monitoring the fuel consumption of the diesel generator the PP ensures that project emissions are considered, if necessary. However, the DOE points out that this is neither stipulated by methodology nor any other requirement. Based on sectoral expertise and experiences gained through many hydro power validation and verifications it is not likely that the emission of diesel generator is more than 1 % of average annual emission reductions (VVM, para 76). 2. A clear definition of the back-up system and location of the back-up meters is provided especially in Annex 4 to the PDD. The correctness could be confirmed by means of interview and documented technical design/PCD/. Information provided and verified ensures that an accurate and complete monitoring of emission reductions is possible. CL is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

5 VALIDATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Participation

LOA

Letter of Approval for the proposed project from the host country Vietnam /LOA/ has been issued by *Ministry of National Resources and Environment* which serves as the DNA of Vietnam. The content of the LOA is fully matching with the CDM requirements.

The Letter of Approval from Annex I country (Switzerland) is issued by the *Federal Office for the Environment (FOEN) - Climate* which serves as the DNA. The content of the LOA is fully matching with the CDM requirements.

Project Participants

The project participants are *PC3 - Investment Joint Stock Company*, *Energy and Environment Consultancy Joint Stock Company* and *Vietnam Carbon Assets Ltd.* The entities from Vietnam have been approved by their respective DNA. The project participants are listed in tabular form in section A.3 and Annex 1 of the PDD/PDD-2/. The documents like PDD, MOC and LOAs are internally consistent.

Vietnam Carbon Assets Ltd. is confirmed as project participant by the DNA of Switzerland. The respective LOA has been checked.

5.1.2 Contribution to Sustainable Development

In the letter of approval of the host Party/LOA/, it is confirmed that the proposed CDM project activity assists Vietnam in achieving sustainable development. Several sustainability targets have been defined in the PDD and could be confirmed by the validation team as well.

5.1.3 PDD editorial Aspects

The PDD of the project is based on the latest PDD Template (Version 03) and complies with the Guidelines for Completing the PDD (Version 07).

5.1.4 Technology to be employed.

A physical site visit was conducted to confirm that the description in the PDD reflects the real situation of the proposed CDM project activity. The technological parameters of turbine and generators indicated in A.4.3 of the PDD are consistent with the feasibility study report and the investment license /FSR/, /IL/. Furthermore the equipment purchasing contract with a Chinese hydro power technology supplier has been checked to verify the technology implemented for the first stage./EPC/ Also by means of interview the technical parameters could be confirmed./IM01/ The project does not involve alteration of an existing installation or process.

A clear description of the differences between the project scenario and the scenario existing prior to the start of the implementation of the project which is also the baseline scenario is provided in A.2 and A.4.3 of the PDD. The project is a hydropower project, and the technology employed is environmentally safe and sound.

5.1.5 Small Scale Projects

The installed capacity of the proposed project is 15.6 MW and is therefore not of small scale type.

5.2 Project Baseline, Additionality and Monitoring Plan

5.2.1 Application of the Methodology

The project applies the consolidated baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 12) which is approved by the CDM Executive Board.

The latest version of methodological tools, “Tool to calculate the emission factor for an electricity system” (Version 2) and “Tool for the demonstration and assessment of additionality” (version 5.2) are applied and referenced in accordance with ACM0002.

The applied methodology and methodological tools are available at UNFCCC website of http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html.

All the applicability conditions of the methodology ACM0002 are met, and the project activity is not expected to result in any other significant emissions not addressed by the applied methodology.

5.2.2 Project Boundary

According to applied methodology ACM0002, the spatial extent of the project boundary includes the project power plant and all power plants connected physically

to the electricity system that the CDM project power plant is connected to. The project boundary and the selected sources and gases which are justified for the project activity are identified in B.3 of the PDD.

5.2.3 Baseline Identification

The DOE confirms that the procedure contained in the methodology to identify the most reasonable baseline scenario has been correctly applied, and the description of baseline identification in the PDD is transparent and verifiable.

According to the applied methodology ACM0002, the baseline scenario for new grid-connected renewable power plants/units is: *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"*.

According to paragraph 105 of the VVM[/VVM/], the applied methodology ACM0002 prescribes the baseline scenario and no further analysis is required in identification of alternatives.

5.2.4 Calculation of GHG Emission Reductions

The emission reduction calculation is conducted as per applied methodology ACM0002 and the methodological tool "Tool to calculate the emission factor for an electricity system" and correct equations and parameters have been used accordingly.

The emission reductions (ER_y) of the project activity are the difference between the baseline emissions (BE_y), project emissions (PE_y) and the leakage emissions (LE_y) as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Baseline emission:

BE_y is calculated by multiplying the net electricity supplied to the Vietnamese grid ($EG_{Pj,y}$) with combined margin emission factor ($EF_{grid,CM,y}$):

$$BE_y = EG_{facility,y} \times EF_{grid,CM,y}$$

The emission factor ($EF_{grid,CM,y}$) is calculated by using the latest version of the "Tool to calculate the emission factor for an electricity system". It is determined ex-ante and consists of the weighted average factors of operating margin (EF_{OM}) and build margin (EF_{BM}).

The data source and process of calculation OM and BM are based on the data that is available at the time of submission of the CDM-PDD to the DOE for validation. It is derived from data provided by the Institute of Energy, an entity legally related to the grid operator EVN.[/COB/, /BS/, /IM04/] The data vintages and calculation have been checked and were assessed as correct.

EF_{OM} and EF_{BM} are calculated as 0.6017 tCO_2e/MWh and 0.4191 tCO_2e/MWh. In accordance with the ACM0002 that weight factors of $w_{OM} = w_{BM} = 0.5$ have been used to calculate the grid emission factor $EF_{grid,CM,y}$ (0.5104 tCO_2e/MWh).

Project emissions:

According to ACM0002, the project emissions of proposed project are considered because the power density is 1,400 W/m^2 (Dak Pone) and 32 W/m^2 (Dak Pone Expansion) respective; therefore higher than the threshold 10 W/m^2. The power density is calculated as prescribed by the methodology. Based on this result the PP calculated the project emissions applying the formulae and default value defined by methodology. Therefore PE_y is 0.

Leakage:

According to ACM0002, the leakage is zero.

Emission reductions:

The annual net generated electricity of the project is estimated to be 68,409 MWh (based on the FSR, if both stations are in normal operation). According to above information, the emission reductions of the project is calculated as following:

$ER_y = BE_y – PE_y – LE_y = BE_y = EG_{facility,y} \times EF_{grid,CM,y}$

$= 68{,}409\ MWh \times 0.5104\ tCO_2e/MWh = 34{,}915\ tCO_2e$

The annual GHG emission reductions covering the first crediting period are estimated ex-ante as *34,915* tCO_2e (if both projects are in normal operation).

It is confirmed by the DOE by cross-checking the whole calculation process[/XLS/] against all referenced data sources and the requirements of applied methodology and methodological tools that:

a) All data sources and assumptions used are listed and referenced in the PDD and are appropriate. Calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimateion of the emission reductions;

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.

5.2.5 Additionality Determination

Consideration of CDM in decision making (if project start before validation)

The validation started after the project started. The starting date is defined as 2005-02-25 which is the earliest date on which the project owner committed to expenditures./CCA/ This is in accordance to the CDM Glossary of Terms. According to EB 49 Annex 22 the proposed project is defined as an existing activity. The project participants provide a transparent and clear presentation of the milestones for project implementation and CDM consideration in the PDD. The information provided have been substantiated with documented evidences which have been verified by the validation team. The documents have been assessed as reliable and authentic. Furthermore the project owner was interviewed to cross check the information. Documentation and orally confirmation are consistent.

Hence the DOE confirms that the proposed project activity meets all stipulations as set out in EB49, Annex 22, paragraph 6 to 8.

Application of methodology / methodological tools

The additionality of the project activity was demonstrated and assessed using the latest version of the “Tool for the demonstration and assessment of additionality” Version 05.2 according to applied methodology ACM0002.

Alternatives

The PDD contains a complete list of all realistic alternatives to the project scenario. There are four plausible alternatives been identified for the project:

- P1: The proposed project activity not undertaken as CDM project;
- P2: Thermal power plant with equivalent amount of annual electricity output;
- P3: Other renewable energy generation facility with equivalent installed capacity or electricity generation;
- P4: The equivalent electricity supplied by the Vietnamese grid (current situation).

P1 which is the project activity not undertaken as a CDM project activity is excluded through investment analysis;

P2 was excluded due to the fact that it is common practice in Vietnam to install higher capacities for thermal power plants. This is evidenced by means of checking the Master Plan which provides a projection of capacities additions in the future./MPEE/

Hence, the validation team is convinced that it is unlikely that a fossil fuel fired power plant is an alternative to the proposed project activity.

P3 was excluded because other renewable energy such as geothermal, solar and biomass energy resources are not available at the project site. This was confirmed by means of checking the master plan, which is not addressing a possible alternative, and through on-site visit.

P4 is the continuation of the current situation. It is in compliance with Vietnamese relevant laws and regulations and it does not face financial barriers. Therefore, it is a realistic and credible alternative scenario to the project activity.

The credible alternatives selected are P1 and P4.

Investment analysis

The latest version of the Guidance on the Assessment of Investment Analysis/GAI/ was applied.

Since the proposed project generates economic benefits (from sales of electricity) other than CDM related income simple cost analysis (Option I) is not applicable. As alternative 4 cannot be considered as comparable investment, option II was also not applied. Therefore the benchmark analysis (Option III) is chosen to conduct the investment analysis. This is appropriate.

The benchmark is estimated as WACC (12.91 %) and compared to the aggregated project IRR (10.11 %). Further the economical viability of each project has been checked and it could be confirmed that both projects are below the benchmark.

The benchmark approach is fully in compliance with the stipulations as set out in the Additionality Tool and Guidance on the Assessment of Investment Analysis. A detailed assessment of each parameter is provided in Annex 3 to this report.

Four parameters are selected for sensitivity analysis: Electricity export to the grid, operation and maintenance costs, investment costs and electricity tariff. The information and justification provided in the PDD was assessed and verified by the validation team. It can be confirmed that the arguments provided, that the benchmark will most likely not be crossed are reasonable and substantiated with documented evidences.

The assessment of the values as outcome of the sensitivity analysis is provided in Annex 3.

As to the accuracy of financial calculations carried out for any investment analysis, the DOE has:

a) Conducted a thorough assessment of all parameters and assumptions used in calculating the IRR and WACC. The assessment of accuracy and suitability of these parameters are summarized in Annex A3 using the available evidences and expertise in relevant accounting practices (VVM, paragraph 110 (a));

b) Cross-checked the parameters against third-party or publicly available sources, such as governmental statistics and industry yearbook (VVM, paragraph 110 (b));

c) Reviewed the feasibility study report, governmental regulations and necessary documents related to the proposed CDM project activity and the project participants (VVM, paragraph 110 (c));

d) Assessed the correctness of computations carried out and documented by the project participants by reproducing the IRR and benchmark calculation in accordance with industrial/local regulations (VVM, paragraph 110 (d));

e) Assessed the sensitivity analysis to determine under what conditions variations in the result would occur, and the likelihood of these conditions (VVM, paragraph 110 (e)).

The DOE confirm the suitability of any benchmark applied in the investment analysis:

a) Project IRR was identified as the financial/economic indicator which is suitable for the project type and decision context ((VVM, paragraph 111 (a)) as per EB 51 Annex 58 paragraph 12;

b) It is ensured that any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity (VVM, paragraph 111 (b));

c) It is reasonable to assume that no investment would be made at a rate of return lower than the benchmark (VVM, paragraph 111 (c)).

Since the project participants rely on values from Feasibility Study Report (FSR) which has been approved by Peoples' Committee of Kon Tum Province /IL/, the DOE ensures that:

a) The data provided in the FSR has been the basis for the decision to proceed with the investment in the project under consideration of CDM benefits, i.e. that the period of time between the finalization of the FSR (June 2004 for Dak Pone and October 2004 for Dak Pone Expansion) and the investment decision (2005-02-14) /CDMD/ is about 4 month later. On 2008-04-04, the Vietnamese government confirmed the applied parameters with the investment license. /IL/ The DOE assessed this time period as sufficiently short that it is unlikely that the input values would have materially changed. The DOE came to this result supported further by analysing the consumer price index, which increased during the years of taking the decision.

b) The values used in the PDD and IRR calculation spreadsheet are fully consistent with the FSR, governmental regulations or other sources as indicated in Annex 3 to this report. All these sources were used to decide whether an investment will be conducted;

c) The input values from the FSR, governmental regulations and other can be confirmed as valid and applicable at the time of the investment decision by cross-checking on the basis of specific local and sectoral expertise, interviews and background research.

Hence, stipulations in VVM, paragraph 112 are fulfilled.

For details of the assessment of financial parameters used in investment analysis, please refer to Annex A3.

Barrier analysis

Barrier analysis has not been used to demonstrate the additionality of the proposed CDM project activity.

Common practice analysis

The DOE confirms that the proposed CDM project activity is not a common practice. Please refer to assessment made in Annex 1.

Summary

The DOE assessed and verified the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by project participants to support the demonstration of additionality by critically assessing the presented evidences using local knowledge and sectoral and financial expertise.

In conclusion, the proposed CDM project activity is assessed as additional.

5.2.6 Monitoring Methodology

The monitoring plan of the proposed CDM project activity is based on and in compliance with the applied monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” Version 12.

5.2.7 Monitoring Plan

The DOE applied a two-step process to assessing compliance with the requirements of monitoring plan, as follows:

a) Compliance of the monitoring plan with the approved methodology:

(i) Identified the list of parameters required by the selected approved methodology by means of document review;

(ii) Confirmed that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the applied methodology ACM0002;

b) Implementation of the plan:

(i) The monitoring arrangements described in the monitoring plan are feasible within the project design;

(ii) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are

sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

The assessment has been conducted by the DOE by means of reviewing of the documented procedures, interviewing with relevant personnel, project plans and physical inspections of the proposed CDM project activity site.

5.2.8 Project Management Planning

The operational and management structure that the project operator will implement in order to monitor emission reductions is described in the PDD. It clearly indicates the responsibilities and institutional arrangements for data collection and archiving.

5.2.9 Crediting Period

The project activity applies a renewable crediting period and the length of the first crediting period is 7 years according to the PDD.

The starting date of the 1st renewable crediting period of the proposed CDM project is 2011-03-01 or the date of registration, whichever is later. This is assessed as appropriate.

5.2.10 Environmental Impacts

The project participants have undertaken an analysis of environmental impacts and an environmental impact assessment in accordance with procedures which is required by Vietnam. A summary of results of the Environmental Impact Assessment Report is described in the PDD.
Project participants have submitted to the DOE documentation on the analysis of the environmental impacts of the project activity/EIA/, there's no transboundary impact and no impacts are considered significant by the project participants or the host Party. The EIA has been approved/AEIA/ by People's Committee of Kon Tum Province in May 2004.

5.2.11 Comments by Local Stakeholders

Local stakeholders have been invited by the PPs to comment on the proposed CDM project activity in a meeting on 2007-08-01/SHP/ which is prior to the publication of the PDD on the UNFCCC website. Brief description of how comments by local stakeholders have been invited and compiled was presented in the PDD. The approval of such a hydro power project by the Vietnamese government depends on the continual consultation and satisfactorily compensation of the local stakeholders.

The DOE confirms following statements by means of document review and interviews with local stakeholders:

a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity have been invited/IM03/, /SHP/;

b) The summary of the comments received as provided in the PDD is complete;

The project participants have taken due account of any comments received and have described this process in the PDD.

6 VALIDATION OPINION

Energy and Environment Consultancy Joint Stock Company has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Dak Pone Hydropower Project" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board.

In the course of the pre-validation 14 Corrective Action Requests (CARs) and 4 Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (Vietnam) and all relevant UNFCCC requirements for CDM. Project activity approvals have been obtained from DNA of Vietnam via the Letter of Approval dated 2008-06-30 and from DNA of Switzerland dated 2010-07-23.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 241,790 tCO_2e are most likely to be achieved within the (1st renewable) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Essen, 2011-06-02

Martin Saalmann
TÜV NORD JI/CDM CP
Validation Team Leader

Essen, 2011-06-02

Rainer Winter
TÜV NORD JI/CDM CP
Final Approval

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/ACCA/	Adjusted contract for construction of dam A from construction company to project owner (2006-06-09)
/AEIA/	Approval of Environmental Impact Assessment (2004-05-20)
/AFSR/	Approval of Feasibility Study Report (14 MW) dated 2004-06-23
/BEN/	Relevant governmental decisions for benchmark calculation: - DEC. No. 709/QD – NLDK - DEC. No. 2014/QD – BCN - DEC. No. 164/2003/ND – CP - DEC. No. 68/1998/ND – CP - Annual Report 2004 of State Bank of Vietnam, page 48 (lending rates) - IMF Country Report No. 07/386
/BL/	Business License of the project owner *PC3 – Investment Joint Stock Company*
/BR/	Business Registration of *Small and Medium Hydropower Management Board*
/BS/	Baseline Study, carried out by the Institute of Energy which is under supervision of EVN; Contract with Institute of Energy for EF calculation
/CC/	Credit Contract (May 2005)
/CCA/	Construction contract of dam for Dak Pone project (2005-02-25)
/CCB/	Construction contract of dam for Dak Pone Expansion project (2007-10-11)
/CCO/	Construction contract of tunnel, pressurized well etc of Dak Pone project (2007-10-18)
/CDMD/	CDM Management decision related documents: 1. Meeting minute with stakeholders (2008-07-01) 2. Letter of Application from People Committee of Kon Tum to the Vietnamese DNA (2007-10-30) 3. Letter of Application from project owner to the People Committee Kon Tum (2007-07-05) 4. Written decision by management board of Project Owner indicating that CDM benefits are necessary to make the project financial viable

Reference	Document
	and thus to apply CDM (2005-02-14)
/COB/	Contract for providing the baseline study between VNEEC and Institute of Energy
/CPA/	Supporting documents for common practice analysis: 1. Government Decree No. 17/2001/NĐ-CP 2. Governmental Report at the CG 2001
/CRP/	Compensation report (2004-10-27)
/EIA/	Environmental Impact Assessment (2004)
/EPC/	Equipment Purchasing Contract (2005-09-08) between project owner and Dongfang Electric Corporation of China
/ET/	Electricity tariff: 1. Minutes of Electricity Tariff Negotiation for Dak Pone Hydropower Plant Project between Project owner and EVN (2005-03-23) (no tariff indication) 2. Minutes of Electricity Tariff Negotiation for Ban Coc Hydropower Plant Project between Project Owner and EVN (2003-08-25). 3. Minutes of Electricity Tariff Negotiation for An Diem 2 Hydropower Plant Project between Project Owner and EVN (2004-03-31) 4. Calculation of average electricity tariff for registered An Diem 2 Hydropower Plant Project (http://cdm.unfccc.int/UserManagement/FileStorage/WNF80HLXP4KI5E3D1MVTR6Z7B2SQOC) 5. Decision No 18/2008/QD-BCT/ET/ issued by the Ministry of Industry and Trade dated 18 July 2008 6. Decision 74/QD-DTDL1/ET/ issued on 24 Dec 2008.
/FSR/	Feasibility Study Report (Dak Pone Project, June 2004; Dak Pone Expansion Project, March 2007)
/GB/	Government Bond Rate: http://www.hastc.org.vn/Thongtin_Giaodich.asp?actType=1&menuup=402000&TypeGrp=1&MenuId=114000&StockType=1&IssuerID=674 (access: 2010-07-27)
/GGI/	Government guidelines for investment analysis: 1. Decision No. 709/QD-BCN and No 709/QD – NLDK issued by Ministry of

[1] http://www.windenergy.org.vn/index.php?mact=Uploads,cntnt01,default,0&cntnt01category=legal%20documents&cntnt01count=5&cntnt01mode=summary&cntnt01pagenum=2&cntnt01returnid=55

Reference	Document
	Industry on 2004-04-13 2. Decision No. 2014/QD – BCN issued by the Ministry of Industry provides temporary guidelines for conducting the economic, financial and investment analysis and providing the purchasing-selling price frame for power generation projects. 3. Circular No 42/2007/TT-BTC issued by Ministry of Finance on 27 April 2007 4. Based on Circular No 153/1998/TT-BTC issued on 26 November 1998 by Ministry of Finance. 5. Decision No.206-2003-QD-BTC by the Viet Nam Ministry of Finance dated 2003-12-12
/IL/	Investment License issued by the People Committee of Kon Tum (2008-04-04)
/IRR/	IRR calculation sheet
/LIF/	Letter of Independent Financial Expert from Alpha Securities Joint Stock Company from 2009-04-17
/LOA/	Letter of Approval from Vietnam DNA (2008-06-30)
/LSW/	License for use of surface water (2007-11-20)
/PCD/	Power Connection Diagram
/POD/	Letter from the grid operator to the project owner and the design institute as proof of delay of construction (2005-09-22)
/PPA/	Pre-negotiation on power tariff between the project owner and Vietnam Electricity (EVN)
/QFP/	Business license of the feasibility study developer Power Design Centre
/SHP/	• Compensation report (2004-10-28) • Minutes of Meeting (2007-08-01)
/TCVN/	Vietnam Construction Code - TCXDVN 285:2002
/TD/	Technical design: • Project layout • Turbine and generator parameters • Dam design • Power House design • Annex 1 - Coordinates of Dak Pone

Reference	Document
/XLS/	Emission reduction calculation spreadsheet

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM0002/	ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 12)
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/GCP/	UNFCCC: Guidelines for completing CDM-PDD and CDM-NM
/IPCC-GP/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
/IPCC-RM/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
/MPEE/	Master Plan VI on Power Development of Viet Nam
/NTP/	National tax policy: 1. Government Decision No 24/2007/Ne-CP on implementation of enterprise tax law issued on 14 Feb. 2007, Chapter V: Article 36 - Item 3. 2. Circular No 42 – 2007TT – BTC on implementation of resources tax law issued on 27 Apr. 2007, Article II – Item II 3. Decree 164/2003/ND – CP on implementation of enterprise incoming tax law issued on 22 Dec. 2003, Article 35, 36
/PDD-T/	Project Design Document Form (CDM PDD) - Version 03
/RET/	Renewable Energy – Technology, Economics and Environment, Springer 2007
/TDA/	Tool for the demonstration and assessment of additionality, Version 05.2
/TEF/	Tool to calculate the emission factor for an electricity system, Version 02

Reference	Document
/VVM/	Validation and Verification Manual (Version 1.1 and Version 1.2)

Table 7-3: Websites used

Reference	Link	Organisation
/dna/	http://www.noccop.org.vn/index.html	Ministry of Natural Resources and Environment of Vietnam serves as the DNA
/cd4cdm/	www.cd4cdm.org	UNEP
/evn/	www.evn.com.vn	Electricity of Viet Nam
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Long, Nguyen Duong	Chief of Planning and Invest Department, PC3
/IM01/	V	☒ Mr. ☐ Ms	Phong, Le Anh	Electrical engineer, PC3
/IM01/	V	☒ Mr. ☐ Ms	Huy, Nguyen Quang	Staff of Planning and training centre, PC3
/IM02/	V	☐ Mr. ☒ Ms.	Hanh, Dang Hong	VNEEC, Deputy Director
/IM02/	V	☐ Mr. ☒ Ms.	Hieu, Bui Thu	VNEEC, Project Developer
/IM02/	V	☒ Mr. ☐ Ms.	Hung, Vu The	VNEEC, Project Manager
/IM03/	V	☒ Mr. ☐ Ms	Tra, Do Thanh	President of Mang Canh Commune
/IM03/	V	☒ Mr. ☐ Ms	A Tinh	Local people of Mang Canh Commune

Reference	MoI[1]		Name	Organisation / Function
/IM04/	V	☒ Mr. ☐ Ms	Nguyen Anh Tuan	Chief of Power System Department, Institute of Energy, EVN

[1)] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Validation Protocol

A2: Assessment of Baseline Identification

A3: Assessment of Financial Parameters

A4: Assessment of Barrier analysis

A5: Outcome of the GSCP

A6: Appointment certificates of the team members

ANNEX 1: VALIDATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
1. General Description of Project Activity				
A.1. Approval *The written approval of the parties involved is a mandatory requirement*				
A.1.1. Has the project provided written approvals of all parties involved? (EB 51 Annex 3 §44) *Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.* *Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA*	*Description:* The letter of approval has been provided by the DNA of Vietnam on 2008-06-30. *Justification of evidences:* The letter of approval has been checked during site visit and is available as scanned version. *Conclusion:* However, the following has been observed: During interview TÜV NORD received information that an entity from Annex 1 has been identified as project participant. The PDD needs to be revised and LOA shall be provided.	/LOA/	~~CAR A4~~	OK
A.1.2. Are the approvals issued from orgainsations listed as DNAs on the UNFCCC CDM website? (EB 51 Annex 3 §§ 44, 47, 48, 49 (b), 49 (c), 53)	*Description:* The letter of approval from Vietnam was issued by the Ministry of Natural Resources and Environment of Vietnam which serves as the DNA. *Justification of evidences:* The original document was checked.	/LOA/ /unfccc/	~~CAR A4~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.	*Conclusion:* However, CAR A4 needs to be closed out first before forming a final opinion.			
A.1.3. Do the written approvals confim that the corresponding party is a Party to the Kyoto Protocol? (EB 51 Annex 3 §45, (a))	*Description:* The LOA clearly states that Vietnam is a party to the KP. *Justification of evidences:* The LOA has been checked to confirm this. Further UNFCCC homepage has been cross-checked. *Conclusion:* However, CAR A4 needs to be closed out first before forming a final opinion.	/unfccc/ /LOA/	~~CAR A4~~	OK
A.1.4. Do the written approvals confim that the participation is voluntary? (EB 51 Annex 3 §45, (b))	*Description:* The LOA from Vietnam indicates that the participation is voluntarily. *Justification of evidences:* The original version of the LOA has been checked during site visit to confirm this. *Conclusion:* However, CAR A4 needs to be closed out first before forming a final opinion.	/LOA/	~~CAR A4~~	OK
A.1.5. Does the written approval from the host country confim that the project contributes to the sustainable development in the country? (EB 51 Annex 3 §45, (c))	*Description:* The LOA indicates that the project contributes to sustainable development in the host country. *Justification of evidences:* The original version of the LOA has been checked during site visit to confirm this. *Conclusion:* LOA meets the requirements.	/LOA/	OK	
A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the project activity, e.g. PDD version number?	*Description:* The title of the project indicated in the LOA from Vietnam is: “Dak Pone Hydropower Project”. This is fully in compliance with the PDD. *Justification of evidences:* The LOA and PDD have been checked	/LOA/ /PDD/	~~CAR A4~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 51 Annex 3 §§45 (d), 50)	and compared. *Conclusion:* However, CAR A4 needs to be closed out first before forming a final opinion.			
A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6? (EB 51 Annex 3 §46)	*Description:* The LOA of Vietnam is unconditional. *Justification of evidences:* The LOA has been checked. *Conclusion:* However, CAR A4 needs to be closed out first before forming a final opinion.	/LOA/	~~CAR A4~~	OK
A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other? (EB 51 Annex 3, § 51)	*Description:* The project participants from Vietnam listed in the PDD are: PC3 – Investment Joint Stock Company and Energy and Environment Consultancy Joint Stock Company. *Justification of evidences:* The PDD has been checked. *Conclusion:* However, CAR A4 needs to be closed out first before forming a final opinion.	/PDD/	~~CAR A4~~	OK
A.1.9. Are all project participants listed in the PDD approved at least by one Party involved? (EB 51 Annex 3, § 51) *Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.* *Describe the means of validation employed to draw this conclusion.*	*Description:* The project participants listed in the PDD are: PC3 – Investment Joint Stock Company and Energy and Environment Consultancy Joint Stock Company. *Justification of evidences:* The LOA has been checked to verify that the entities listed are approved. *Conclusion:* The entities listed are approved by Vietnam. However, CAR A4 needs to be closed out first before forming a final opinion.	/LOA/ /PDD/	~~CAR A4~~	OK
A.1.10. Are any other project participants approved but not listed in the PDD? (EB 51 Annex 3, § 52)	*Description:* The PDD does only provide two PPs from Vietnam. *Justification of evidences:* The information provided in the PDD has been confirmed by means of checking the LOA from Vietnam. *Conclusion:* However, CAR A4 needs to be closed out first before	/LOA/ /PDD/	~~CAR A4~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	forming a final opinion.			
A.1.11. Does the DoE have a direct contractual relationship with the PP? (EB 51 Annex 3, §51 and EB 50, Annex 48, §§ 7-9) *Check whether the PPs listed in the published PDD are still listed in the PDD going to be submitted to request for registration.*	A contract exists with one PP and can be provided upon request of CDM EB.		OK	
A.2. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*				
A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development? (EB 51 Annex 3, §§ 123 – 125) *Contain a statement confirming whether the letter of approval by the DNA of the host party confirmed the contribution of the project to the sustainable development of the Host Party.*	*Description:* The LOA of Vietnam which has been checked during on – site visit clearly states that the project activity assists the host country in achieving sustainable development. *Justification of evidences:* The original version of the LOA was presented to the validation team during on-site visit. *Conclusion:* Vietnam has confirmed that the project assists it in achieving sustainable development.	/LOA/	OK	
A.2.2. Will the project create other environmental or social benefits than GHG emission reductions? (EB 51 Annex 3, §§ 123 – 125) *Describe the other positive aspects not related to GHG*	*Description:* The project will create other environmental and social benefits than GHG emission reductions such as: - Balancing the supply and demand gap of electricity in Vietnam - It will improve the communication system and clean water supply for local people due to installation made based on the	/PDD/ /XLS/ /FSR/	~~CAR A1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
emission reduction on the environment.	implementation of the project activity Quantitative employment and income generation for local people. *Justification of evidences:* This has been confirmed during interview with local stakeholder during site visit. *Conclusion:* However, the following has been observed and should be corrected: The percentage of annual tax in total GDP of the Kon Tum Province is not calculated correct.	/IM03/		
A.3. PDD editorial aspects *The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.*				
A.3.1. Has the latest version of the PDD form been applied? (EB 51 Annex 3, § 55)	*Description:* The latest version of the CDM-PDD (version 03) has been applied. Most of the sections are filled according to the guideline. *Justification of evidences:* The latest template version has been checked and compared to the sections of the PDD. *Conclusion:* No deviation has been observed.	/PDD/ /unfccc/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)? (EB 51 Annex 3, §§ 56, 57)	*Description:* Most of the sections are filled according to the guideline. *Justification of evidences:* The latest guidelines have been checked and compared to the content of the PDD. *Conclusion:* The following deviation has been observed: PDD section A.4.3 should be revised according to latest PDD guideline. E. g. monitoring equipments and its location should be indicated.	/PDD/ /PDD-T/	~~CAR A3~~	OK
A.4. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.*				
A.4.1. Does the PDD contain a clear, accurate and complete project description? (EB 51 Annex 3, §§ 58, 59) *The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.* *Pl. consider esp.* chapters *A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.* *Describe the process undertaken to validate the accuracy*	*Description:* The project description is mainly given in section A.4.2. of the PDD. In general the project description can be assessed as clear, accurate and complete to provide the reader with a sufficient understanding of the project activity. *Justification of evidences:* For assessment the validation team has (1) reviewed the PDD in detail, (2) checked the equipment purchase contracts, (3) carried out a site visit (check of nameplates) and *(4)* carried out interviews with the PPs and local stakeholders.	/PDD/ /IM01/ /IM02/	~~CL A1~~	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
and completeness of the project description. *Contain the DOE's opinion on the accuracy and completeness of the project description.*	*Conclusion:* Though the project description has been provided in the PDD, the following issue has been observed: The coordinates provided in the PDD are associated to the dams. However, it is requested to provide the coordinates for the power house as well, backed-up with documented evidences.			
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?	*Description:* The proposed project is a green-field activity consistent of two stages. *Justification of evidences:* Information provided in the PDD could be confirmed/ checked by means of the following: 1. On-site visit 2. Document check (e.g. feasibility study, investment license, contracts). *Conclusion:* The project description in the PDD is in line with the actual situation and will be implemented accordingly.	/PDD/ /IM01/ /IM02/ /EPC/ /CCA/ /CCB/ /CCO/ /AFSR/ /IL/	OK	
A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? EB 51 Annex 3, §§63, 64) *Describe the steps taken to validate this issue.*	*Description:* The project does not involve alteration of the existing installation or process. *Justification of evidences:* During on – site visit as well as document review, no alteration was observed. *Conclusion:* The project is a new installation.	/PDD/ /IM01/ /IM02/ /AFSR/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
A.4.4. Does the project design engineering reflect current good practices? *Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.*	*Description:* The equipment is purchased from a Chinese turbine and generator supplier. *Justification of evidences:* The technical design documentation has been checked during on-site visit. The design documentation was cross-checked by equipment installed. *Conclusion:* Based on sector specific knowledge TÜV NORD comes to the conclusion that the engineering is current good practice as the Chinese supplier has sufficient know-how to provide such technology. The technology implemented is emission free. Hence, it is concluded that it is good practice.	/PDD/ /IM01/ /EPC/	OK	
A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country? *Describe the process undertaken to assess the state of the art technology.*	*Description:* Technology from experienced Chinese technology supplier has been implemented. *Justification of evidences:* Through on-site visit, interview and review of device technical documents TÜV NORD checked the technology implemented. *Conclusion:* It can be concluded that the project uses state of the art technology.	/PDD/ /IM01/ /EPC/	OK	
A.4.6. Does the project make provisions for meeting training and maintenance needs? *Describe the process undertaken to assess the maintenance and training needs.*	*Description:* Yes, training measures are conducted and will be conducted as set out in Annex 4 of the PDD. *Justification of evidences:* This was orally confirmed by the project owner during interview. *Conclusion:* Training and maintenance needs are considered.	/PDD/ /IM01/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
A.5. Small scale project activity *It is assessed whether the project qualifies as small-scale CDM project activity*				
A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? (EB 51 Annex 3, § 135 (a))	The proposed project is large scale. This section is not applicable.	/PDD/	n/a	
A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? (EB 51 Annex 3, § 135 (b)) *Check, if applicable the expiry dates of the applied methodology. Further, take into consideration the general guidance to the methodologies[2], which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.*	The proposed project is large scale. This section is not applicable.	/PDD/	n/a	
A.5.3. Is the small scale project activity not a debundled component of a larger project activity? (EB 51 Annex 3, § 135 (c))	The proposed project is large scale. This section is not applicable.	/PDD/	n/a	

[2] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Describe the steps taken to validate this issue. Pl refer to the Compendium of guidance on debundling (EB 36, Annex 27).				
A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party? (EB 51 Annex 3, § 135 (d))	The proposed project is large scale. This section is not applicable.	/PDD/	n/a	
2. Project Baseline, Additionality and Monitoring Plan				
B.1. Application of the Methodology				
B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof? (EB 51 Annex 3, §65) *Describe the steps taken to validate this issue.*	*Description:* The methodology applied is ACM0002 Version 9. This methodology was applicable at the time of PDD publishing for GSP. Same applies to "Tool to calculate the emission factor for an electricity system" (Version 02) and "Tool for the demonstration and assessment of additionality" (Ver. 05.2). *Justification of evidences:* The respective tools and methodology have been checked by means of consulting the UNFCCC website. *Conclusion:* During the course of validation the version of the methodology and the grid tool have been changed. To ensure accurateness and completeness PDD needs to be revised.	/PDD/ /unfccc/ /ACM2/ /TDA/ /TEF/	~~CAR B10~~	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website? (EB 51 Annex 3, §§65, 69) *Describe the steps taken to validate this issue.*	*Description:* The methodology applied is ACM0002 Version 9, which is identical with the version available on the UNFCCC website during time of GSP. *Justification of evidences:* The PDD and website have been checked. *Conclusion:* Ok, the methodology applied is correct. However, it has been observed that the version shall be updated to the latest version. Hence, CAR B10 was raised.	/PDD/ /unfccc/	~~CAR B10~~	OK
B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled? (EB 51 Annex 3, §§66 (a), 66 (b), 68, 70, 75) *Describe for <u>each</u> applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.*	*Description:* The description provided in the PDD is in accordance to the version of ACM0002 at the time of publishing the PDD for GSP. *Justification of evidences:* The content of the PDD has been compared to the applicability criteria listed in the methodology. *Conclusion:* However, the new version of ACM0002 shall be applied.	/PDD/ /unfccc/ /ACM2/	~~CAR B10~~	OK
B.1.4. In case one or more applicability criteria have not been met, has the validation team requested clarification to, revision of or deviation from the methodology in accordance with the latest guidelines? (EB 51 Annex 3, §§ 71 -74)	*Description:* The applicability criteria listed and assessed in the PDD have been checked by the validation team *Justification of evidences:* The content of the PDD has been compared with the methodology. *Conclusion:* The proposed project meets all applicability criteria of the methodology.	/PDD/ /unfccc/ /ACM2/	OK	
B.1.5. Is the project in accordance with every other	*Description:* The PDD provides a clear description of all issues	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
stipulation or requirement mentioned in all sections of the methodology? (EB 51 Annex 3, §70) *Describe the steps taken to check whether the proposed project activity meets all the other possible stipulations and /or limitations mentioned in all sections of the approved methodology selected.*	included in the methodology. *Justification of evidences:* The methodology has been compared with the content of the PDD. *Conclusion:* The project is in accordance to all stipulations provided in the methodology.	/unfccc/ /ACM2/		
B.2. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project*				
B.2.1. Are the project's spatial boundaries (geographical) clearly defined? (EB 51 Annex 3, §§67 (a), 77 – 79) *Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.*	*Description:* The spatial extent of the project boundary includes all components of the project activity like dam, intake canal, pressure well, power house and substation. Furthermore all power plants connected to the Vietnamese electricity grid are also part of the project boundary. *Justification of evidences:* The identification of the components of the proposed project activity was checked based on the design as indicated in the FSR and confirmed orally by the project owner. The definition of the Vietnamese grid has been confirmed with documentation provided by the Institute of Energy of EVN. *Conclusion:* The information provided in the PDD is in compliance with provision in the methodology.	/PDD/ /FSR/ /IM01/	OK	
B.2.2. Are all sources and GHGs included in the	*Description:* All sources and GHGs are included in the project	/PDD/	~~CL B1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
project boundary as required in the applied methodology? (EB 51 Annex 3, §§67 (a), 77 – 79) *Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.*	boundary as required in the applied methodology ACM0002 Ver. 09 and Ver. 12. Only CO_2 resulted from electricity generation is considered in baseline emission. *Justification of evidences:* The PDD has been checked and compared to the content of the methodology. *Conclusion:* However the mass/energy flows should be included more accurately. Hence, the following CL was raised: Figure 3 in PDD section B.3 is not clear. Types of mass/energy flow should be clarified. i.e. instead of using one line type for all flows, different line types can be used to represent water, mechanical energy, electricity, etc., in order to avoid ambiguousness.	/ACM2/		
B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified? (EB 51 Annex 3, §§67 (a), 77 – 79) *Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.*	*Description:* The methodology does not allow for such choices. Sources of emissions identified are the GHGs emitted by grid connected power plants, i. e. CO_2. Project emissions must not be accounted for as the power density is higher than the threshold of 10 W/m². *Justification of evidences:* Content of the PDD has been verified during site visit and compared to the stipulations as set out in the methodology. *Conclusion:* In conclusion all sources are correctly addressed.	/PDD/ /ACM2/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.3. Baseline Identification *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*				
B.3.1. What possible baseline scenarios have been considered? (EB 51 Annex 3, §§ 67 (b), 82) *Fill in all alternatives in table A-2.*	*Description:* The PDD clearly indicates the definition of the baseline as prescribed by the applied methodology ACM0002, which is 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 calculations described in the "Tool to calculate the emission factor for an electricity system". *Justification of evidences:* The content of the PDD has been compared to the methodology requirement. *Conclusion:* The only possible baseline scenario as prescribed by the methodology has been considered.	/PDD/ /ACM2/ /TEF/	OK	
B.3.2. Is the list of alternatives complete? (EB 51 Annex 3, §§67 (b), 82) *Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration*	☐ All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted. ☐ The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued Not applicable, since the methodology already specifies baseline.		n/a	
B.3.3. What has been identified as the baseline	*Description:* The baseline scenario is identified as: Electricity delivered to the grid by the project activity would have otherwise	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
scenario? (EB 51 Annex 3, §§80, 81, 85) *Describe the chosen BL scenario, taking into consideration the technology that would be employed and / or the activities that would take place in the absence of the proposed CDM project activity.*	been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin calculations described in the "Tool to calculate the emission factor for an electricity system". *Justification of evidences:* The methodology has been checked to confirm the approach. *Conclusion:* Baseline is in accordance to the methodology.	/ACM2/ /TEF/		
B.3.4. Has the baseline scenario been determined according to the methodology? (EB 51 Annex 3, §§81, 86 (e)) *Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.*	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. ☒ The determination has been carried out as per the procedure contained in the applied methodology. ☐ The following CARs / CLs have been identified with respect to the selection of the baseline scenario:	/PDD/ /ACM2/ /TEF/	OK	
B.3.5. Has any plausible alternative scenario been excluded? (EB 51 Annex 3, § 82) *Describe how it is validated that no plausible alternative scenario has been excluded.*	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. ☐ No plausible baseline scenario has been excluded. ☐ The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued: A scenario approach is not stipulated by the methodology. Thus this clause is not applicable.	/PDD/ /ACM2/ /TEF/	n/a	
B.3.6. Is the identified baseline scenario reasonable and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources?	☐ The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer to comments in table A-2 and sections B.3.2 to B.3.5 above. ☐ The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative	/PDD/ /ACM2/ /TEF/	n/a	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 51 Annex 3, §§ 83 - 86(a)-(c) *Describe whether the choice of the identified baseline scenario is reasonable by validating the key assumptions, calculations and rationales used in the PDD. Describe whether these are listed, relevant and conservatively interpreted in the PDD.*	Not applicable, since the methodology already specifies baseline. However, it should be noted that the raw data of calculating the emission factor is derived from the Institute of EVN the monopolist of grid operation in Vietnam. The emission factor calculated is the lowest of all registered projects in VN. Hence, TÜV NORD came to the conclusion that the basic data can be assessed as conservative.			
B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? (EB 51 Annex 3, §§ 84, 86(d)) *Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).*	*Description:* EVN provides the data. EVN is responsible to supervise electricity facilities in Vietnam. *Justification of evidences:* The correctness of data has been confirmed by means of interview with a responsible person from EVN. Furthermore, Vietnamese legislation has been checked. *Conclusion:* Hence, TÜV NORD came to the conclusion that for establishing the baseline, all policies were properly considered.	/IM04/ /PDD/	OK	
B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced? (EB 51 Annex 3, § 86 (a) – (c)) *Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.*	*Description:* The baseline scenario is determined based on information from Institute of Energy which is a company of EVN the national grid operator. *Justification of evidences:* The data provided by the PP is forwarded by the Energy Institute based on a contractual agreement between the consultant and the Institute. The data has been checked and an interview has been conducted with a responsible person to confirm the data. *Conclusion:* Hence, TÜV NORD is convinced of the correctness of data used to establish the baseline scenario.	/PDD/ /BS/ /IM04/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.3.9. Does the PDD contain 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. (EB 51, Annex 3, §85)	*Description:* The PDD provides a clear explanation/ description. The baseline is clearly and reasonably identified and fully in accordance to the methodology. Basic data has been verified. *Justification of evidences:* Please refer to assessment provided in previous sections. *Conclusion:* The baseline is clearly and reasonably identified and fully in accordance to the methodology. Basic data has been verified.	/PDD/	OK	
B.4. Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*				
B.4.1. Methodology				
B.4.1.1. Does the PDD describe how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools? (EB 51 Annex 3, §§67 (d), 93, 94) *Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.*	*Description:* A clear explanation of the additionality is provided in section B.5. of the PDD. Since the project is of large scale nature the correct tool is applied to justify additionality. *Justification of evidences:* The content of the PDD has been checked and compared to the requirements of large scale projects and additionality. *Conclusion:* Additionality justification is in line with the nature of the project and methodology.	/PDD/ /TDA/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.2. Consideration of CDM before project start				
B.4.2.1. Is the project starting date reported in accordance with the CDM glossary of terms? (EB 51, Annex 3, §103 (a)) *Describe the steps taken to validate this issue.*	*Description:* The starting date is indicated as 25 Feb 2005, the date when the construction contract of Dam A was signed. This is the earliest date of project construction, implementation or real action, in compliance with the CDM glossary of Terms. *Justification of evidences:* The following documents have been checked: 1. Construction contract for of dam Dak Pone Project (2005-02-25) 2. Equipment Purchasing Contract for Dak Pone Project (2005-09-08) 3. Construction contract for dam of Dak Pone Expansion Project (2007-10-11) 4. Construction contract for tunnel, pressurized well of Dak Pone Project (2007-10-18) *Conclusion:* The date is the earliest date of project construction, implementation or real action, in compliance with the CDM glossary of Terms. Hence, TÜV NORD assessed the starting date as appropriate.	/CCA/ /CCB/ /CCO/ /EPC/	OK	
B.4.2.2. In case the project start date is on or after 2nd August 2008 has the PP informed the DNA and UNFCCC about the intension to seek CDM status? (EB 51 Annex 3, §§ 98, 99, 100) *Describe whether such a notification has been provided by*	As described above the start date is in 2005.		OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
the project participants within six months of the project activity start date; if NOT it shall be determined that the CDM was not seriously considered.				
B.4.2.3. In case the project start date is before commencing of validation and 2nd August 2008, was the incentive from the CDM seriously considered and are details given in the PDD? (EB 51 Annex 3, §§ 99, 101) *Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.*	*Description:* The project start date is in 2005. A timeline of events has been provided in Table 18 of the PDD as the evidences for CDM consideration. 1. PDD development for presentation in seminar, 2004-10-26 2. Director decision on CDM development for the project activity, 2005-02-14 3. Project owner letter to EVN for support in CDM aspect, 2005-04-06 4. EVN response letter to the project owner on CDM support, 2005-04-25 5. Formal letter by the project owner to the EVN to nominate the CDM project to apply for the Belgium CDM program, 2005-08-31 6. Formal letter by the project sponsor to request the local authorities for their verification and support for the CDM project, 2007-07-05, 7. Signing the CDM development and registration contract with the CDM consultant, 2007-10-22 8. Submitting a CDM supporting letter by Kon Tum DONRE, 2007-10-29 9. Submitting a CDM supporting and verification letter to the DNA by the PPC, 2007-10-30	/PDD/ /CDMD/ /IM01/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	10. LOA issued, 2008-06-30 11. Validation, 2009-03 *Justification of evidences:* The validation team has reviewed the Board Decision on CDM development, which states that CDM revenues would raise the project IRR and the project needs CDM revenue to finance the project. *Conclusion:* The project start date is before validation date and 2nd August 2008. The project participant has seriously taken CDM incentive into account.			
B.4.2.4. How and when was the decision to proceed with the project taken? *Describe the steps taken to validate the starting date.*	*Description:* The decision to proceed with the project activity was taken by the company director after discussions among the company management members on the need of CDM revenues to finance the proposed project activity. The decision was taken on 2005-02-14. *Justification of evidences:* The validation team has reviewed the director decision dated 2005-02-14 on CDM development for the project activity. The project owner was also interviewed to confirm such decision making process. *Conclusion:* Since the project activity includes Dak Pone and Dak Pone Expansion, the following issues need to be addressed: The investment decision was made in Feb 2005; at that time the FSR of Dak Pone Expansion was not finished and the FSR of Dak Pone (dated June 2004) does not contain information of Dak Pone Expansion. The basis of investment decision for Dak Pone Expansion should be justified. Since the CDM investment decision was made by PC3 in 2005 and the project ownership changed from PC3 to PC3 Investment Joint	/PDD/ /FSR/ /CDMD/ /IM01/	~~CAR B4~~ ~~CAR B7~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Stock Company in 2008, it should be evidenced that the ownership change does not affect validity of the decision.			
B.4.2.5. Is the project start date consistent with the available evidences? (EB 51 Annex 3, §101) *Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.*	*Description:* The starting date is indicated as 2005-02-25, which was the date of signing of the construction contract for Dam A. *Justification of evidences:* The validation team has interviewed the project owner and checked all the available contracts, including: 1. Construction contract for of dam Dak Pone Project (2005-02-25) 2. Equipment Purchasing Contract for Dak Pone Project (2005-09-08) 3. Construction contract for dam of Dak Pone Expansion Project (2007-10-11) 4. Construction contract for tunnel, pressurized well of Dak Pone Project (2007-10-18) The date of the construction contract for Dam A has been compared with the starting date provided in the PDD. It could be confirmed that the date of construction contract for Dam A is the earliest date of project construction, implementation or real action, in compliance with the CDM glossary of Terms. *Conclusion*: The project start date is consistent with the supporting evidence.	/PDD/ /CCA/ /CC/ /CCB/ /CCO/ /IM01/	OK	
B.4.2.6. Was the decision to proceed with the project taken by a person which has the authority to do so? (EB 51 Annex 3, §100 (a))	*Description:* The decision to proceed with project was taken by the director of the company. *Justification of evidences:* The validation team has reviewed the director decision to confirm CDM has been considered to proceed in the investment of the project. The decision was signed and	/PDD/ /CDMD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Describe the steps taken to validate this issue.	approved by the company director with the consultation with all of the management members in the company. A cross check was also conducted to confirm the decision was taken by the person who has the highest level authority in the company. This was done by comparing the signature of the decision final approver with that of the company legal representative in the business license. *Conclusion:* The decision to proceed with the project was taken by the company director who is the company legal representative.			
B.4.2.7. How was the CDM involved in the decision making process? (EB 51 Annex 3, § 101) *Describe why CDM was a decisive factor in the decision making process.*	*Description:* CDM revenue has been reflected in the board decision. *Justification of evidences:* The validation team has reviewed the board decision on CDM development. The decision indicated that CDM revenue was as an important incentive for investing in the project. Furthermore, the project owner was also interviewed during onsite visit. The FSR financial analysis was used as inputs for the board decision. It was determined that the project was not financially attractive without the CDM revenues. *Conclusion:* CDM had been considered as a decisive factor in the decision making process by the project owner.	PDD/ /CDMD/ /IM01/	OK	
B.4.2.8. Do the evidences provided doubtlessly prove that continuous and real actions were taken in order to secure the CDM status? (EB 51 Annex 3, § 101; EB 49 Annex 22, §7)	*Description:* A timeline of events has been provided in Table 18 of the PDD as the evidences for CDM prior consideration. 1. Director decision on CDM development for the project activity, 2005-02-14 2. Project owner letter to EVN for support in CDM aspect, 2005-04-06 3. EVN response letter to the project owner on CDM support, 2005-04-25	PDD/ /CDMD/ /IM01/	~~CAR B7~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	4. Formal letter by the project owner to the EVN to nominate the CDM project to apply for the Belgium CDM program, 2005-08-31 5. Formal letter by the project sponsor to request the local authorities for their verification and support for the CDM project, 2007-07-05, 6. Signing the CDM development and registration contract with the CDM consultant, 2007-10-22 7. Submitting a CDM supporting letter by Kon Tum DONRE, 2007-10-29 8. Submitting a CDM supporting and verification letter to the DNA by the PPC, 2007-10-30 9. LOA issued, 2008-06-30 10. Validation, 2009-03 *Justification of evidences:* The validation team has checked all the supporting documents for the events listed in Table 18 in the PDD and interviewed the project owner to confirm the information. It should be noted that especially in the year 2005 the PP sought for support by EVN. The national grid operator has been actively participated in CDM in Vietnam in an early stage via the national capacity building programmes and contacts of organization such as Belgian JI/CDM Purchase Program. A presentation from 2003 of the DNA from Vietnam announce this: http://www.climateanddevelopment.org/ap-net/docs/miyazaki/46%20Vietnam.pdf Hence, a formal letter to EVN and from EVN can be considered as real action. The original letters, duly signed and stamped, have			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	been checked during the site visit. The validation team has no doubt that the letters are authentic. It should be further noted that a formal letter to the local authorities (2007-07-05) is an essential part of the CDM application in Vietnam. The letter has also been carefully checked during the on-site verification. It has been assessed as authentic since it is stamped and duly signed. This letter is therefore also a unambiguous evidence for real action. *Conclusion:* Since the project activity includes Dak Pone and Dak Pone Expansion, the following issue needs to be clarified: The timelines of Dak Pone and Dak Pone Expansion should be listed and discussed separately so as to avoid confusion.			
B.4.2.9. Is the gap of documented evidences to secure the CDM status less than 3 years and are the evidences relevant for substantiating the action taken, credible, reliable and complete? (EB 49 Annex 22, §8)	*Description:* The key milestones of the project activity were provided in the PDD and can be summarized as follows: 1. 2004-06: FSR for Dak Pone completed 2. 2004-10: Initial FSR for Dak Pone Expansion completed 3. 2004-06: PDD completed and presented 4. 2005-02: Board Decision taken 5. 2005-04-06: Project owner letter to EVN for support in CDM aspect 6. 2005-04-25: EVN response letter to the project owner on CDM support 7. 2005-08-31: Formal letter by the project owner to the EVN to nominate the CDM project to apply for the Belgium CDM program	/PDD/ /CDMD/ /IM01/ /TA/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	8. 2007-07-05: Formal letter by the project sponsor to request the local authorities for their verification and support for the CDM project 9. 2007-10-22: Signing the CDM development and registration contract with the CDM consultant 10. 2007-10-29: Submitting a CDM supporting letter by Kon Tum DONRE 11. 2007-10-30: Submitting a CDM supporting and verification letter to the DNA by the PPC 12. 2008-06-30: LOA issued 13. 2009-03: Validation *Justification of evidences:* The validation team has checked all the supporting documents for the above milestones. The time difference between the FSR and the Board Decision was 6 months. From the Board Decision to the LOA issued and the validation date, frequent actions were taken with reasonable time intervals by the project participant to secure the CDM status. *Conclusion:* It can be confirmed that the gap between all the key documented milestones is less than 3 years.			
B.4.2.10. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM? (EB 51 Annex 58, §7) *Describe the reasons for ceasing the project and explain*	*Description:* A list of key events of the project activity was provided in Table 18 of the PDD. *Justification of evidences:* The validation team has checked all the supporting documents for these milestones. By means of interviewing the project owner and onsite visit, it could be confirmed that there was no ceasing during the course of the project implementation.	/PDD/ /CDMD/ /IM01/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
why the incentive from CDM was necessary to recommence the implementation.	*Conclusion:* The project implementation did not cease after commencement.			
B.4.2.11. Can the CDM involvement in the decision assessed as serious? *Describe whether or not the project would have been undertaken without the incentive of the CDM.* (EB 51 Annex 3, § 103 (b) – (c))	*Description:* CDM revenue has been considered in the decision making process. *Justification of evidences:* The board decision was reviewed. The content of the decision indicated that CDM benefits are necessary to make the project financially viable. Moreover, during the site visit, the project owner was also interviewed. It was confirmed that without the revenues from CERs sale, the project owned would not invest in the project activity. *Conclusion:* CDM was seriously taken into account during decision making process.	/PDD/ /CDMD/ /IM01/	OK	
B.4.3. Identification of alternatives Step 1 (in case of SSC projects pl. Skip steps 1 and 2)				
B.4.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or sevices that are to be supplied by the proposed CDM project activity? (EB 51 Annex 3, §§ 104 – 106) *Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.*	*Description:* As stated in the PDD, the project participant has identified the following alternatives: 1. The proposed project activity undertaken without being registered as a CDM project activity. 2. Adding a new fossil fuel-fired power plant with equivalent power output 3. Adding a new renewable energy power plant other than hydropower plant 4. Continuation of the current situation *Justification of evidences:* Since the proposed project provides electricity to a national grid, the alternatives summarized provide	/PDD/ /MPEE/ /EF/	~~CAR B1~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	the same service. The alternatives commonly utilized to generate electricity. Similar alternatives are usually considered as alternatives for hydro power CDM projects. *Conclusion:* The list of alternatives has been assessed as complete. However, the following issue has been observed: In B.5, step 1, the argumentation to exclude alternative 2 is not sufficient. The fact that there is no fossil fired power plant with equivalent power output included in Master Plan of Electricity Expansion for period of 2006-2015 with perspective to 2025 - EVN (Master Plan VI) does not necessarily eliminates the possibility of such plant being included in provincial level master plan or new project being proposed by some investor to related authority.			
B.4.3.2. Have all realistic alternatives been identified to the project? (EB 51 Annex 3, §§ 104 – 106) *Describe whether the list of alternatives is credible and complete. Describe how it is validated that the alternatives are realistic.*	*Description:* As stated in the PDD, the project participant has identified the following alternatives: 1. The proposed project activity undertaken without being registered as a CDM project activity. 2. Adding a new fossil fuel-fired power plant with equivalent power output 3. Adding a new renewable energy power plant other than hydropower plant 4. Continuation of the current situation *Justification of evidences:* Since the proposed project provides electricity to a national grid, the alternatives summarized provide the same service. The alternatives commonly utilized to generate electricity. Similar alternatives are usually considered as alternatives for hydro power CDM projects.	/PDD/ /MPEE/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
	Conclusion: It could be confirmed that all realistic alternatives have been identified and discussed properly.			
B.4.3.3. Do all identified alternatives comply with enforced legislations? (EB 51 Annex 3, §§ 105 (c)) *Describe the steps taken to validate this issue. Refer to the legislations.*	*Description:* Four alternatives are identified. *Justification of evidences:* The alternatives 1 and 4 are in compliance with the Vietnamese law. The alternative 2 is excluded due to the reason which is based on the Master Plan for Electricity Expansion in Vietnam. This is justified with the argument that fossil fuel fired power plants with a capacity similar to the proposed project are not announced in the Master Plan and thus are not an alternative. The validation team has checked the Master Plan and can confirm the information given by the PP. Furthermore, the project owner has only a business license for the operating hydro power projects. In addition it makes not much sense to implement a fossil fuel fired power plant in the mountainous area due to transportation difficulties. Considering the water resources hydropower is the most appropriate at the project site. Thus, the exclusion of alternative 2 is sufficiently justified. As other renewable power plants are not addressed in the Master Plan at the same location as the proposed project, the exclusion of alternative 3 is also appropriately justified. By means of on-site visit it could be observed that the potential for other renewable power plants is limited and a comparable installed capacity is unlikely because there are insufficient renewable sources except for water resources. *Conclusion:* All the identified alternatives are in compliance with the local laws and regulations.	/PDD/ /MPEE/	OK	
B.4.4. Investment analysis Step 2				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide additonal details of the the calculation parameters..				
B.4.4.1. Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasable without the revenues from the sale of CERs? (EB 51 Annex 3, §107)	*Description:* Section B.5 of the PDD demonstrated the project additionality and corresponding evidences. *Justification of evidences:* The validation team has checked all the steps taken by the project participant in demonstrating the project additionality with regards to the applied methodology ACM0002 and tool for the demonstration and assessment of additionality, version 5.2. All the data used in the assumptions and calculations were taken from the project approved feasibility study report. The feasibility study report was developed by a licensed third party consultant. The validation team has cross checked all the parameters in the PDD, excel sheet and the approved feasibility study report (FSR) to ensure consistency. The profile of the FSR developer was also provided for review and confirmation on the company competence. *Conclusion:* Though evidences have been provided in the PDD to substantiate that the project would not be the most economically attractive alternative without the CDM revenues, the following problem was identified: The demonstration to exclude option b. for deriving benchmark somehow contradicts with later section, where the expected rate of return on equity for investors in Vietnam is estimated and used to calculate benchmark WACC.	/EGD/ /XLS/ /QFP/	~~CAR B2~~	OK
B.4.4.2. Is an appropriate analysis method chosen	*Description:* Section B.5 of the PDD indicated that the project	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
for the project (simple cost analysis, investment comparison analysis or benchmark analysis)? (EB 51 Annex 3, §107, EB 39 Annex 10) *Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.*	participant has chosen the benchmark analysis method. *Justification of evidences:* The project participant has justified that the project will have income from electricity sale and there are no other credible and realistic baseline scenario alternatives other than electricity supply from the grid as the reasons for choosing the benchmark analysis (option 3). The validation team has reviewed the FSR and interviewed the project owner. It was confirmed that the project will be operating and selling electricity to the national grid, and therefore have income from electricity sale other than revenues from CERs sale. *Conclusion*: The analysis method has been chosen appropriately.	/XLS/		
B.4.4.3. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation? (EB 51 Annex 3, §109, EB 51, Annex 58, §8) *Describe the steps taken to validate this issue.*	*Description:* The excel spread sheet has been provided for the validation team for review. *Justification of evidences:* The validation team has received the excel spreadsheet from the project participant and was able to check all the data and calculations. *Conclusion:* Viewable and unprotected excel spreadsheet has been provided.	/XLS/	OK	
B.4.4.4. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash inflow) included? (EB 51 Annex 3, §108; EB 51 Annex 58 § 3 – 4)	*Description:* The period chosen for investment analysis was 20 years. The expected operational lifetime of the project was 30 years. *Justification of evidences:* The PDD, excel spreadsheet and the FSR have been checked. The investment analysis period is 10 years shorter than the expected operational lifetime of the project. *Conclusion:* During the course of validation, the validation team observed the following issue:	/PDD/ /XLS/ /FSR/	~~CAR B6~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.	Since the period for investment assessment (20 yrs) is shorter than expected operation of the project activity (30 yrs), the fair value of the project activity assets should be included as a cash inflow at the end of the assessment period. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets.			
B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the *Tool to determine the remaining lifetime of equipment*? (EB 50 Annex 15)	*Description:* Please refer to Section B.4.4.4. *Justification of evidences:* *Conclusion:*		~~CAR B6~~	OK
B.4.4.6. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice? (EB 51 Annex 3, §108; EB 51 Annex 58 §4) *State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.*	*Description:* The fair value is zero. *Justification of evidences:* The depreciation of the fixed asset investment is linear over the 20 years assessment period. Thus, after 20 years the fair value is 0. This is deemed to be appropriate since the project cash flow is considered for 40 years and it is not expected that the project has a value after this long period. *Conclusion:* Fair value can be considered as zero. However, the following is addressed: Since the period for investment assessment (20 yrs) is shorter than expected operation of the project activity (30 yrs), the fair value of the project activity assets should be included as a cash inflow at the end of the assessment period. It is expected that such fair value calculations will include both the book value of the asset and the	/PDD/ /XLS/	~~CAR B6~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	reasonable expectation of the potential profit or loss on the realization of the assets.			
B.4.4.7. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation? (EB 51 Annex 3, §108; EB 51 Annex 58 §4)	*Description:* Please refer to Section B.4.4.4 *Justification of evidences:* *Conclusion:*		~~CAR B6~~	OK
B.4.4.8. Are depreciation and other non-cash related items added back to net profits for the purpose to calculate the financial indicator? (EB 51 Annex 3, §108; EB 51 Annex 58 §5)	*Description:* Depreciation has not been considered in the investment analysis directly. It has been considered for income tax calculation. *Justification of evidences:* The excel spreadsheet has been reviewed. *Conclusion:* Depreciation has no direct impact on the cash flow. This is in accordance with paragraph 5, Annex 58, EB51.	/PDD/ /XLS/	OK	
B.4.4.9. Is taxation excluded in the investment analysis or is the benchmark intended for post tax comparisons? (EB 51 Annex 3, §108; EB 51 Annex 58 §5)	*Description:* The project participant applied post tax benchmark. *Justification of evidences:* The excel spreadsheet has been reviewed to check the calculations. Taxation has been considered in calculating project IRR. *Conclusion:* Taxation has been considered in calculating the project IRR.	/XLS/ /PDD/ /FSR/	OK	
B.4.4.10. Were the input values used in the investment analysis valid and applicable at	*Description:* The input values used for investment analysis were taken from the FSR. A time difference between the FSR completion and Board Decision is summarized as follows:		~~CAR B3~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
the time of the investment decision? (EB 51 Annex 3, §§108, 111; EB 51 Annex 58 §6) *In case the basis for input values is a Feasibility Study Report (FSR) describe how it has been ensured that the period in time between the finalisation of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed. Further confirm the consistency of values in FSR and PDD.*	1. 2004-06: FSR for Dak Pone completed 2. 2004-06: PDD completed and presented 3. 2005-02: Board Decision taken *Justification of evidences:* The PDD, excel spreadsheet and the FSR have been checked by the validation team. *Conclusion:* Since the project activity includes Dak Pone and Dak Pone Expansion, the following issues need to be addressed: The investment decision was made in Feb 2005; at that time the FSR of Dak Pone Expansion was not finished and the FSR of Dak Pone (dated June 2004) does not contain information of Dak Pone Expansion. The basis of investment decision for Dak Pone Expansion should be justified. The total investment for Dak Pone Expansion is from FSR dated 2007, which is after the investment decision thus should not be used. Investment decision for Dak Pone Expansion is in Feb 2005 Construction started in October 2007. Whether the data used for investment analysis at the time of investment decision is still valid at the time of construction should be justified. Data source of all key assumptions should be clearly referenced. Only those available at the time of investment decision can be used in the analysis.		~~CAR B4~~ ~~CAR B5~~ ~~CAR B6~~	
B.4.4.11. Is the plant load factor (PLF) chosen in a	*Description:* The assumptions tab of the excel spreadsheet has	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER? (EB 48, Annex 11)	mentioned the PLF, which is 50.6%. *Justification of evidences:* The calculation in the excel spreadsheet has been checked. The project participant calculated the PLF as the estimated annual operating hours divided by the number of hours in a year. The estimated annual operating hours was taken from the FSR. The figure was confirmed in the FSR and the FSR was also approved by the local government. According to Annex 11, EB48, the plant load factor can be considered as appropriate if it is defined ex-ante for finance application to the banks or implementation approval application, or determined by a third party contracted by the project participant. *Conclusion:* Since the data used for calculating the plant load factor is prepared by a third party consultant, it can be assessed as appropriate and acceptable.	/FSR/		
B.4.4.12. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR? (EB 51 Annex 3, §108; EB 51 Annex 58 §9)	*Description:* The project participant applied project IRR. *Justification of evidences:* The validation team has reviewed the excel spreadsheet to confirm on the investment structure applied in the investment analysis, which includes equity and bank loan. According to paragraph 9, Annex 58, Eb51, the cost of financing expenditures should not be included in calculating project IRR. *Conclusion:* It can be concluded that the financing expenditures have been excluded from the calculation of project IRR.	/PDD/ /XLS/	OK	
B.4.4.13. In cases where a post-tax benchmark is applied please ensure that actual interest payable is taken into account in the calculation of income tax.	*Description:* The project activity applied post-tax benchmark. *Justification of evidences:* The validation team has reviewed the excel spreadsheet and checked the calculations. It is confirmed that interest payable was considered in estimating corporate income tax.	/PDD/ /XLS/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 51 Annex 58 §11) *As per the guidance it is recommended to select a pre tax benchmark in order to Describe the steps taken in assessing this requirment.*	*Conclusion:* The interest was considered in calculating corporate income tax.			
B.4.4.14. In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow? (EB 51 Annex 3, §108; EB 51 Annex 58 §10)	*Description:* Not applicable. The project participant applied project IRR. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.4.15. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)? (EB 51 Annex 3, § 110; EB 51 Annex 58 §12 – 15) *In case risk premiums are applied precisely describe its suitability to reflect the risks associated with the project activity, considering the project type and market situation.*	*Description:* The benchmark chosen for the proposed project activity is the internal weighted average cost of capital (WACC). *Justification of evidences:* The validation team has checked the calculations of the WACC and all supporting references. According to paragraph 12, Annex 58, EB51, either WACC or commercial lending rate is appropriate benchmark in case of applying project IRR. As assessed in Section 4.4.12, the project applies project IRR, thereby, WACC is assessed an appropriate benchmark for the project activity. *Conclusion:* The type of benchmark (WACC) has been chosen appropriately for the proposed project activity.	/PDD/ /XLS/ /FSR/	OK	
B.4.4.16. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made at a rate of a lower return than the	*Description:* The benchmark chosen is the weighted average cost of capital (WACC). *Justification of evidences:* The validation team has checked the calculation of the WACC value. Investment analysis was also		~~CAR B3~~	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
benchmark? (EB 51 Annex 3, §108; EB 51 Annex 58 §13 – 15) *Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.*	provided in the PDD to show that below the benchmark, the project would not be financially viable and the project owner would not invest in the project. The validation team also compared the benchmark value with other registered CDM activities which also applied WACC benchmarks. The value applied by the project participant is lower than the average value. Please refer to Annex 3 for further assessment. *Conclusion:* Though the value is suitable for the project activity, the following finding was observed during the course of validation: Sectoral characteristics should be considered when calculating Expected rate of return on equity for investors in Vietnam.			
B.4.4.17. Is it ensured that the project cannot be developed by other developers than the PP? (EB 51 Annex 3, §108; EB 51 Annex 58 §13 – 14) *Describe why the benchmark does not include the subjective profitability expectations or risk profile of the project developer. If applicable assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.*	*Description:* Since the project participant did not apply internal benchmark. This is not applicable. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.4.18. Was the benchmark consistently used in the past for similar projects with similar risks? (EB 51 Annex 3, §108)	*Description:* The benchmark has been consistently used in other similar project activities. *Justification of evidences:* The validation team has reviewed the local regulations. These included the 1. Decision No.709/QD-BCN and No 709/QD – NLDK issued by Ministry of Industry on 2004-04-13 and the Decision No. 2014/QD – BCN issued by the Ministry of Industry provides temporary guidelines for conducting the economic, financial and investment analysis and providing the	/PDD/ /IM01/ /GGI/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	purchasing-selling price frame for power generation projects. This is the basis for local project owners to conduct investment analysis and application for approval for their projects. *Conclusion:* The benchmark applied was consistently used in the past for similar project activities.			
B.4.4.19. Does the PDD and related spreadsheets contain a sensitivity analyis and does the same contain variation of parameters which may vary throughout the project lifetime, (EB 51 Annex 3, §§108, 109 (e); EB 51 Annex 58 §17 – 18) *Describe relevance of parameters used in the sensitivity analysis as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.*	*Description:* The PDD and the excel spreadsheet have demonstrated the sensitivity analysis for the proposed project activity. The project participant applied the below parameters for the sensitivity analysis with a ±10% variation. a) Net electricity supply to grid b) O&M cost c) Investment cost; and d) Feed-in tariff *Justification of evidences:* Among these parameters, investment cost and power tariff will not be likely to vary because the tariff has been provided in the final power purchase agreement between the project owner and Vietnam Electricity. The remaining O&M cost and net electricity supply to grid are likely to vary in the future due to change in salary, premium, labor and administration cost, etc. and due to change in water availability of the river at different time. *Conclusion:* The validation team concluded that the variation could happen throughout the project lifetime.	/PDD/ /XLS/ /PPA/	OK	
B.4.4.20. Were only variables that constitute more	*Description:* The following parameters were identified for sensitivity	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
than 20% of either total project costs or total project revenues subjected to reasonable variation? (EB 51 Annex 3, §108; EB 51 Annex 58 §17)	analysis: a) Net electricity supply to grid b) O&M cost c) Investment cost; and d) Feed-in tariff *Justification of evidences:* Among these parameters, only the investment cost constitutes more than 20% (100%) of the project cost. This is in accordance with the EB51, Annex 58, paragraph 17. The other parameters do not account for more than 20% of the project cost. However, this is common practice in doing investment analysis for hydropower plant projects; therefore they are considered as appropriate parameters. *Conclusion:* Parameters that do not account for more than 20% of project costs were also considered in sensitivity analysis.	/XLS/		
B.4.4.21. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter? (EB 51 Annex 3, §108; EB 51 Annex 58 §17) *Describe whether those parameters are considered in the sensitivity analysis?*	*Description:* The following parameters were considered in sensitivity analysis: 7. Net electricity supply to grid, 8. O&M cost, 9. Investment cost; and 10. Feed-in tariff. *Justification of evidences:* The proposed project activity is a hydropower plant project. It is a common practice to do sensitivity analysis with such parameters. *Conclusion:* Parameters applied were common practice in	/PDD/ /XLS/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	hydropower plant projects.			
B.4.4.22. Is the range of variation reasonable in the specific context of the project activity, taking into consideration historic trends in the business sector? (EB 51 Annex 3, §108; EB 51 Annex 58 §18) *Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.*	*Description:* The range of the variation applied by the project participant to demonstrate the sensitivity analysis is ±10%. *Justification of evidences:* According to paragraph 18, Annex 58, EB51, the range of ±10% is assessed as appropriate. *Conclusion:* The following finding has been detected: The possibility of key sensitivity parameters to vary within the selected range (10% according to published PDD) should be discussed.	/PDD/ /XLS/	~~CAR B6~~	OK
B.4.5. **Barrier analysis Step 3 or SSC additionality assessment**				
B.4.5.1. Are there any barriers given which have a clear and direct impact on the financial returns of the project? (EB 51 Annex 3, §§ 114, 133, 136) *In case of LSC projects those issues cannot be considered as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 51 Annex 58.*	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.5.2. Are the barriers described risk related (e.g technology failure, other performance related risks)? (EB 51 Annex 3, §§ 115, 133, 136)	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:*		n/a	n/a

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
Are there other barriers or barriers due to prevailing practice existent which would have led to higher emissions?	*Conclusion:*			
B.4.5.3. Has the unavailabilty of means of finance for the proejct been described and adequately substantiated? Do evidences doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM? (EB 51 Annex 3, §§ 115, 136, EB 50 Annex 13, §9)	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.5.4. How is it justified and evidenced that the barriers given in the PDD are real? (EB 51 Annex 3, § 115 (a))	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.5.5. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives? (EB 51 Annex 3, § 115 (b))	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.5.6. Does the review of relevant background information on the nature of the	*Description:* Not applicable. The project activity applied investment analysis.		n/a	n/a

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
company(ies) and entitiy(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real? (EB 50 Annex 13, §4)	*Justification of evidences:* *Conclusion:*			
B.4.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers? (EB 50 Annex 13, §5)	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.5.8. Would provision of additional financial means lead to the mitigation of the barrier(s) demonstrated? (EB 50 Annex 13, §7) *Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analysing the project's additionality within the framework of an investment analysis is inappropriate. .*	*Description:* Not applicable. The project activity applied investment analysis. *Justification of evidences:* *Conclusion:*		n/a	n/a
B.4.6. Common practice analysis Step 4 (in case of SSC projects skip this step)				
B.4.6.1. Is the defined region for the common practice analysis appropriate for the	*Description:* Vietnam is defined as the region for common practice analysis.	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
technology/industry type? (EB 51 Annex 3, § 119 (a)) *Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.*	1. As the investment conditions changed significantly after the year 2001, since firstly also IPPs were allowed to generate electricity and supply to the national grid, the PP started analyzing projects implemented after 2001. This is reasonable as different market situations do not allow comparison of similar projects. 2. The PP chose Vietnam as a regional boundary, which is large enough to give an appropriate assessment. 3. The PP used a definition provided by the Vietnamese government regarding the size of the project activities. The categories provided by the Ministry of Industry show that projects equal and smaller than 30 MW but larger than 5 MW are considered to be similar. *Justification of evidences:* The approach is assessed to be correct as it reflects the provisions of the addtionality tool that projects are considered similar if they refer to the same type of technology and are in the same scale and implemented in the same investment environment. *Conclusion:* The common practice analysis can be assessed as appropriate.	/MPEE/ /TCVN/		
B.4.6.2. To what extent similar projects have been undertaken in the relevant region? (EB 51 Annex 3, § 119 (b))	*Description:* Table 14 and 15 in the PDD provided the criteria and list of similar projects for common practice analysis. *Justification of evidences:* According to the Decision of Ministry of Industry - No 3454/QĐ-BCN dated 18th October 2005 on development plan of small-scale hydropower projects, hydropower projects having installed capacity within the range 1 ÷ 30 MW are	/PDD/ /TA/ /ACM2/ /TCVN/ /MPEE/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	categorised as small scale projects. According to Master Plan of Electricity Expansion for period of 2006-2015 with perspective to 2025 - EVN (Master Plan VI), there are 3 such similar projects in total. *Conclusion:* Hydropower projects with installed capacity between 5MW and 30MW which started construction after 2nd August 2001 in Vietnam are identified as similar projects.			
B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed? (EB 51 Annex 3, § 119 (c))	*Description:* Totally five (05) similar projects were identified. *Justification of evidences:* Among the 5 identified similar projects, 2 are also applying for CDM. For the remaining 3 projects, key differences with the project are demonstrated. Two of the three were excluded due to the advantage in financial capability of the project owners who are the big state owned enterprises. The remaining one project has access to ODA source. This is confirmed by reviewing the common practice analysis in the PDD. *Conclusion:* Key differences between the similar projects and the project activity have been demonstrated.	/PDD/ /TA/ /ACM2/ /CPA/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.5. Ex-Ante Calculation of GHG Emission Reductions *It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.*				
B.5.1. Are the equations applied correctly according to the applied approved methodology? (EB 51 Annex 3 §§67 (c), 88, 89, 91) *Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.*	☐ The equations applied for calculation are correctly applied according to the approved methodology. ☒ The following mistakes have been identified in this context: There are some issues with emission reduction calculation: 1. Project emission is not considered in ER calculation but it is considered in B.3 and in monitoring plan. 2. It should be justified that the data used for EF calculation is correct and conservative. Project emission from backup power generation of hydropower plant is considered in Table 6 of PDD section B.3. It should be clarified what the backup power generation is and how it results in CO_2 emission.	/PDD/ /ACM2/	~~CAR B8~~ ~~CL B2~~	OK
B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)?	*Description:* The methodology does not link to another methodology choice. The ACM0002 does not provide different approaches and choices. However, the tool to calculate the emission factor for an electric system allows choices.	/PDD/ /ACM2/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
(EB 51 Annex 3 §§ 89, 90) *Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.*	*Justification of evidences:* The Viet Nam national grid emission factor has been determined by the DNA of Viet Nam. Reviewing of the methodology ACM0002 did not indicate any other methodological choices. *Conclusion:* The methodology is applicable with the project activity which the baseline is the power generated by the project activity multiplied by the grid emission factor.			
B.5.3. Have conservative assumptions been used when calculating the project emissions? (EB 51 Annex 3 §§ 89, 90) *Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.*	*Description:* The project emission has been addressed in the PDD as zero. *Justification of evidences:* The project activity include Dak Pone and Dak Pone Expansion, with the power density of 1400 W/m^2 and 32 W/m^2 respectively. According to the applied methodology, this is zero. *Conclusion:* The project emission is zero.	/PDD/ /ACM2/	OK	
B.5.4. Does the implementation of the project activity lead to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology? (EB 51 Annex 3, §76)	*Description:* The only likelihood of GHG emissions within the project activity boundary is from the standby genset to support the auxiliary equipment during maintenance or power outage. *Justification of evidences:* The amount of standby genset fuel consumption is required to be monitored. *Conclusion:* The emission from the standby genset is the only emission source not addressed by the methodology.	/PDD/ /ACM2/	OK	
B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions?	*Description:* The plant load factor has been determined in the excel spreadsheet as 50.6%. *Justification of evidences:* The project participant calculated the	/PDD/ /FSR/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
(EB 48 Annex 11, §§ 1, 3, 4) *Describe why the PLF is conservative in the framework of calculating emissions reductions and whether the PLF is the same in the framework of demonstrating additionality by applying the investment analysis. Note, in order to be conservative in both cases the PLF may be different.*	PLF as the estimated annual operating hours divided by the number of hours in a year. The estimated annual operating hours was taken from the FSR. The figure was confirmed in the FSR and the FSR was also approved by the local government. According to Annex 11, EB48, the plant load factor can be considered as appropriate if it is defined ex-ante for finance application to the banks or implementation approval application, or determined by a third party contracted by the project participant. *Conclusion:* The plan load factor has been determined as ex-ante and considered in baseline emission determination.			
B.5.5. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions? (EB 51 Annex 3, § 90) *Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.*	*Description:* The ex-ante data and parameter are stated in section B.6.2 of PDD and remain fixed through the crediting period. The PDD has identified the following as ex-ante parameters: 1. Combined margin CO_2 emission factor of grid 2. Operating margin CO_2 emission factor 3. Build margin CO_2 emission factor *Justification of evidences:* According to the methodology ACM0002, these parameters have been correctly determined as fixed. *Conclusion:* The EF is calculated ex ante and will be fixed in the crediting period.	/PDD/ /ACM2/ /EF/	OK	
B.5.6. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable? (EB 51 Annex 3, § 90) *Describe clearly the steps taken to assess whether the*	☒ All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative. ☐ The following mistakes have been identified in this context:	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity				
B.5.7. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change. *Describe the steps taken to validate this issue.*	*Description:* The emission reductions have been provided in Section B.6.3 of the PDD and excel spreadsheet for review. *Justification of evidences:* The project activity is a hydropower plant. The power generation will be measured using electric meters. Section B.7 of the PDD described the monitoring methodology and monitoring plan. During onsite visit the validation team has interviewed the project owner; all the necessary QA/QC procedures will be applied to ensure proper electricity measurement. *Conclusion:* The monitoring plan is likely to be implemented during the operation phase of the project activity. Therefore the validation team is convinced that the project emission reductions are real measurable and give long term benefits.	/PDD/	OK	
B.6. Monitoring of Emission Reductions *It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.*				
B.6.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan? (EB 51 Annex 3, §§ 67 (e), 120, 122 (a) , 123) *Assess whether all applicable parameters listed in the*	*Description:* The monitoring parameters have been listed in Section B.7.1 of the PDD, including the followings: 1. Net power supply to grid; 2. Power export to grid; 3. Power import from grid;	/PDD/ /ACM2/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
methodology are included in the monitoring plan. *Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.* *In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.*	4. Area of reservoir; 5. Installed capacity; and 6. Quantity of fuel used *Justification of evidences:* The validation team has compared the monitoring plan stated in Section B.7.1 of the PDD with the requirements of the methodology. Besides, even though it is not required by the methodology, fuel consumption from diesel has been considered to ensure conservativeness. *Conclusion:* All the monitoring parameters have been included in the monitoring plan in Section B.7 of the PDD as in accordance with the mothodology.			
B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology? (EB 51 Annex 3, § 122 (a), 122 (b), 123) *Assess whether the provided information for all parameters w.r.t.* *a) Label (name of the data / parameter)* *b) data unit* c) *description* d) *source of data* e) *measurement equipment / method / procedure* f) *monitoring frequency*	*Description:* The monitoring parameters and monitoring plan have been listed in Section B.7.1 of the PDD. *Justification of evidences:* The validation team has compared the monitoring plan stated in Section B.7.1 of the PDD with the requirements of the methodology. *Conclusion:* Though the monitoring parameters and monitoring plan have been in place, the following findings have been observed: The monitoring plan of Dak Pone and Dak Pone Expansion should be described separately. Eg. it should be indicated in B.7.1. whether the EGy is measured by joint meter for separate meter; TEGy in B.7.1. is only for Dak Pone not considering Dak Pone Expansion. There are some issues with monitoring parameters: 1. EFi,j,y is included as monitoring parameter. This should be justified.	/PDD/ /ACM2/	~~CAR B9~~ ~~CL B3~~	OK

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
g) *QA/QC procedures* *are appropriately described and in compliance with the requirements of the methodology..*	2. in B.7.2 it should be clarified whether the back-up system is backup meter or not. If so, meter location should be clearly indicated.			
B.6.3. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology? (EB 51 Annex 3 122 (b), 123) *Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.* *Please consider that additional equations might be necessary to calculate auxiliary parameters.*	*Description:* The monitoring plan and calculation of estimated emission reductions were described in the PDD and the excel spreadsheet. *Justification of evidences:* The validation team has reviewed Section B.7 of the PDD and the excel spreadsheet and compared with the requirements of the applied methodology. It could be confirmed that the monitoring plan has provided all necessary means of implementation and all the applied equations are in line with the methodology. *Conclusion:* Monitoring plan are equations are sufficient and as in accordance with the applied methodology.	/PDD/ /ACM2/ /XLS/	OK	
B.6.4. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity? (EB 51 Annex 3 123 (c)) *Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.*	*Description:* The monitoring arrangements have been described in Section B.7 of the PDD. *Justification of evidences:* The validation team has interviewed the project owner and CDM consultant during onsite visit for the understanding of the implementation of the monitoring during operations. QA/AC procedures will be established before the plant begins operations. *Conclusion:* It can be concluded that the monitoring arrangements provided in the PDD will be properly implemented.	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activit can be reported ex-post and verified? (EB 51 Annex 3 123 (b)) *Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.*	*Description:* A brief outline of the QA/QC procedures has been addressed in Section B.7.2 of PDD to ensure the emission reductions will be achieved when the project activity begins operation. *Justification of evidences:* According to the Decision 65/2002 the calibration frequency is defined as: - With electricity meter (1 phase) : 5 years - With electricity meter (3 phases): 2 years The calibration of the meters will be conducted by an independent third party, which will seal the meters after calibration. The meters will be checked manually and electronically via data control system. Furthermore the invoices will be used to cross-check the imported and exported electricity. *Conclusion:* The QA/QC procedures are assessed as appropriate.	/PDD/	OK	
B.6.6. Are procedures identified for data management? (EB 51 Annex 3 123 (b)) *Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation* *Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.*	*Description:* Section B.7.2 of PDD has indentified data management. EVN staff and project owner will jointly check manual meter recordings with the electronic data. The data will be stored in paper and electronic form at least two years after the crediting period. *Justification of evidences:* The procedures are addressed in the PDD and confirmed by means of interview during on-site visit. *Conclusion:* All necessary data management procedures will be developed and implemented as described in PDD.	/PDD/ /ACM2/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
1. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
C.1. Is the project's starting date clearly defined and evidenced? (EB 51 Annex 3, §98) *Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".*	*Description:* The project start date defined in Section C.1.1 of PDD as the signing date of the overall civil construction contract dated 2007-02-22. *Justification of evidences:* The validation team has reviewed the overall civil construction contract and interviewed the project owner to confirm the date stated in the PDD. *Conclusion:* The starting date of the proposed project activity has been clearly defined in accordance with the CDM glossary.	/PDD/ /CDMD/ /IM01/	OK	
C.2. Is the project's operational lifetime clearly defined and evidenced? *Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).* *Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.*	*Description:* The project operational lifetime stated in Section C.1.2 of the PDD. *Justification of evidences:* The operational lifetime of the project was selected by the project participant. According to paragraph 3, Annex 58, EB 51, the period of expected operation of the underlying project activity can be deemed as the technical lifetime of the project. Furthermore, the applied operation lifetime is also in accordance with the Decision No. 2014/QD – BCN issued by the Ministry of Industry, which states the average operational period of hydropower plant projects with installed capacity of below 30MW of between 20 and 40 years. *Conclusion:* The validation team concludes the operational life time is considered appropriate.	/PDD/ /GGI/	OK	
C.3. Is the start of the crediting period clearly defined and reasonable? *Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.*	*Description:* The start of the crediting period stated in Section C.2.1.1 of PDD is 2011-03-01. *Justification of evidences:* From the on-site interview with project owners and review of project progress, the start date of the crediting period is realistic.	/PDD/ /IM01/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Conclusion: The validation team is convinced the starting date of the crediting period is reasonable.			
2. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.*				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? (EB 51 Annex 3, §§ 130 – 132) *Check the host party regulations, regarding EIA.*	*Description:* According to the Decision No. 80/2006/ND-CP dated 09/08/2006, the guidance on Environmental Protection Law of Vietnam 2005, the project entity must analyze the environmental impacts of project activities in Viet Nam before utilizing natural resources and beginning project construction. An EIA has been conducted and approved by the local authorities. The project owner shall be responsible for implementing all the contents it commits in the approved EIA report and submit 6-month environmental monitoring reports to the local authorities as evidences for its implementation. *Justification of evidences:* The validation team has reviewed the relevant decisions and the laws, the EIA report and the EIA report approval issued by the Kon Tum Provincial Department of Natural Resources. *Conclusion:* The validation team concluded project activity meets the EIA compliance of the Host Country and the EIA approval was issued by the Kon Tum Provincial Department of Natural Resources and Environment.	/PDD/ /EIA/ /AEIA/	OK	
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it	*Description:* The Project Developer commissioned a third party to conduct the required environmental impact assessment and the	/PDD/	OK	

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
been carried out and if applcable duly approved? (EB 51 Annex 3, §§ 130 – 132) *Check the EIA and its approval, if applicable.*	EIA report was approved by the Kon Tum Provincial Department of Natural Resources and Environment. *Justification of evidences:* By means of document review, the validation team has reviewed the EIA approval issued by Kon Tum provincial authority. *Conclusion:* The EIA is in compliance to host country requirements for hydro power plants.	/EIA/ /AEIA/		
D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation? (EB 51 Annex 3, §§ 129 – 131) *Check the PDD (section D). Check whether the project will create any adverse environmental effects.* *Check the relevant national environmental legislation.*	*Description:* An analysis of the environmental impacts of the project activity has been provided in Section D of the PDD. *Justification of evidences:* The EIA was conducted according to the environmental protection law of Viet Nam and the Decision 80/2006/ND-CP. The validation team has reviewed relevant documentation and interviewed the project owner and relevant stakeholder during onsite visit. *Conclusion:* The PDD described an analysis of environmental impacts which is in line with local regulations.	/PDD/ /EIA/ /AEIA/	OK	
D.1.4. Are transboundary environmental impacts considered in the analysis? (EB 51 Annex 3, §§ 130 – 132) *Check the documents and local official sources / expertise regarding transboundary environmental impacts.*	*Description:* There are no trans-boundary issue to the project activity. The hydropower plant is constructed on a stream that is not shared with other bordering countries. *Justification of evidences:* The validation team has reviewed the project site map that indicates the location of the hydropower plant located inside the host country. *Conclusion:* The project activity is developed within the host country of Viet Nam.	/PDD/ /EIA/ /AEIA/	OK	
3. Stakeholder Comments				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.				
E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD? (EB 51 Annex 3, § 127) *Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.*	*Description:* Local stakeholder consultations have been conducted as stated in Section E.1 of PDD. From the document review and onsite interview, it is revealed that the stakeholder meeting was organized in Dak Long commune, Kon Long district, Kon Tum province on 2007-08-01, which is evidenced by the Minute of Stakeholder Meeting. The relevant participants were listed in Section E.1 of the PDD. *Justification of evidences:* The validation team has reviewed the minute of stakeholder meeting. Other supporting documents such as newspaper invitation, minutes of meeting and attendance list. *Conclusion:* All the relevant stakeholders have been invited and participated in the meeting before the publication of the PDD.	/PDD/ /SHCP/	OK	
E.2. Can the local stakeholder consultation process be assessed as adequate? (EB 51 Annex 3, § 128 (a) – 128 (c)) *Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.* *Please consider the following requirements in this context:* *(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity,*	*Description:* Local stakeholder consultations have been conducted as stated in Section E.1 of PDD on 2007-08-01. In section E.1 – E.3 of the PDD, the project owner had meeting minutes to take note of all the questions from stakeholder, summary of comments and measure taken. *Justification of evidences:* The validation team has reviewed the minutes of the stakeholders meeting submitted to confirm the stakeholder meetings have been conducted as stated in Section E.1 of PDD. *Conclusion:* The validation team is convinced that the stakeholder consultation was conducted is deemed adequate under the given	/PDD/ /SHCP/	OK	

Checklist Item (incl. guidance for the validation team)	**Validation Team Comments** (justification and substantiation of information, data and evidences)	**Ref.**	**Draft Concl.**	**Final Concl.**
have been invited; *(b) The summary of the comments received as provided in the PDD is complete;* *(c) The project participants have taken due account of any comments received and have described this process in the PDD.*	conditions.			

ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

Table A-2: Assessment of Baseline Identification (EB 51 Annex 3, §§ 82 – 85)

☐	Baseline is not identified
☒	Assessment of baseline see below

Baseline Alternatives identified	Inline with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evi-dence used	DOE Assessment	
					Appro-priateness of elimination	Assessment of validation team (results and means of assessment)
The baseline is the equivalent electricity generated by the project activity which is provided by the grid in the pre-project scenario.	☒	☐	The baseline is prescribed by the methodology applied.	On-site assessment /EF/	☐	The methodology and the project design has been compared to ensure that the applied baseline is appropriate. Please refer to the assessments made in the Annex 1 of this Report.

ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

Table A-3.1: Assessment of Financial Parameters (EB 51 Annex 3, §§110, 111, 113/ in case financial parameters stem from FSR §112) for **Dak Pone**

☐	No financial parameters are used for additionality justification
☒	Assessment of all financial parameters see below

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Gross electricity generation	62.9	GWh	Feasibility Study Report	/FSR/	☒	☒	The value is derived from the feasibility study report which was established by the "Electricity Design Centre of the Power Company No.3 (PC3). The centre has determined the output based on long term hydrological conditions from the project area. The mentioned entity is an engineering company which has the necessary expertise to determine the feasibility of hydro projects. The business license issued by Vietnamese government has been checked to confirm this./QFP/ The plant load factor is about 51.3 %. Considering decision in EB 48, Annex 11, clause 3 the total electricity generation is assessed as applicable. The FSR providing centre is a third party which has been contracted by the project owner. Furthermore, the value has been reconfirmed in the FSR from June 2004/FSR/ and finally approved by the government of Vietnam/AFSR/, /IL/. As indicated in the PDD the amount of electricity output must be increased by 24.90 % to reach the benchmark. The calculation has been checked and could be verified. Considering that the hydrological conditions are based on long term measurements it is unlikely that the output will be increased by 24.90 %. Hence, a significant improvement

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>of the financial viability of the proposed project is unlikely.</td></tr>
<tr><td>Net electricity delivered to the grid</td><td>62.3</td><td>GWh</td><td>Feasibility Study Report</td><td>/FSR/</td><td>☒</td><td>☒</td><td>The net electricity delivered to the grid is calculated as:

gross output (annual electricity generation) * (1- loss load.)
The loss load is determined as 1%.
Based on experiences of the validation team an assumed value of 1 % is appropriate for consideration of losses and internal consumption.
Considering the assessment of the gross output above the net electricity generation is assessed as appropriate.</td></tr>
<tr><td>Total investment</td><td>258.0</td><td>Billion VND</td><td>Feasibility Study Report</td><td>/FSR/</td><td>☒</td><td>☒</td><td>The total investment is from the feasibility study report.
Further it has been confirmed by the Peoples' Committee of Kon Tum Province.
A cross check of capacity unit investment has been conducted with other registered hydro projects in Vietnam by the validation team.
The unit investment costs per kW are 18,428,142 VND. Compared to other hydro projects it was observed that the investments mainly refer to a similar height as indicated in the table below./unfccc/.

<table><tr><th>Reg. No.</th><th>Unit cost (apx) VND/kW</th><th>Capacity (MW)</th></tr><tr><td>2627</td><td>20,333,333</td><td>15</td></tr><tr><td>3484</td><td>20,373,143</td><td>8.1</td></tr><tr><td>2372</td><td>11,400,460</td><td>8.7</td></tr><tr><td>2371</td><td>13,796,250</td><td>4.4</td></tr><tr><td>2367</td><td>18,020,179</td><td>5.6</td></tr><tr><td>2368</td><td>18,084,909</td><td>5.5</td></tr><tr><td>2978</td><td>18,173,000</td><td>18</td></tr><tr><td>2891</td><td>18,339,631</td><td>3.6</td></tr><tr><td>2878</td><td>20,060,128</td><td>15.6</td></tr><tr><td>3256</td><td>17,977,333</td><td>7.5</td></tr><tr><td>3255</td><td>18,755,313</td><td>6.4</td></tr><tr><td>3034</td><td>19,213,714</td><td>14</td></tr><tr><td>2971</td><td>19,761,100</td><td>20</td></tr><tr><td>3051</td><td>19,794,872</td><td>19.5</td></tr><tr><td>3514</td><td>18,432,917</td><td>2.4</td></tr><tr><td>3457</td><td>19,599,561</td><td>11.4</td></tr></table></td></tr>
</table>

							<table><tr><td>3514</td><td>16,441,101</td><td>2.4</td></tr><tr><td>3484</td><td>20,373,143</td><td>8.1</td></tr><tr><td>3589</td><td>15,601,176</td><td>6.4</td></tr><tr><td>3505</td><td>17,679,875</td><td>8</td></tr><tr><td>3530</td><td>18,473,846</td><td>13</td></tr><tr><td>3667</td><td>24,793,641</td><td>15</td></tr><tr><td>Average</td><td>18,430,846</td><td>-</td></tr><tr><td>Project</td><td>18,428,142</td><td>14.0</td></tr></table> In conclusion, the total investment is accepted, since 1. It has been determined by an independent third engineering entity/PFS/ 2. It has been approved by the Vietnamese government/IL/ 3. Projects of similar size in Vietnam apply same unit costs. With regard to the sensitivity analysis the PP shows in the PDD and IRR calculation that the total investment must be decreased by 20.97% to reach the benchmark. This is assessed as unlikely by TÜV NORD since the price indices increased during the time of implementation which makes the validation team confident that a decrease of 20.97 is highly unlikely.
Electricity tariff (VAT excl.)	599	VND/kWh	Minutes of Electricity Tariff Negotiations	/ET/	☒	☒	The validation team has reviewed the Decision No.709/QD-NLDK Ministry of Industry/BEN/ dated 2004-04-13, which mandated the average tariff in wet and dry seasons of 533 and 563 VND/kWh respectively. The feasibility study report/FSR/ of Dak Pone dated 2004.06 was also checked. The tariff proposed in the financial analysis submitted to the project owner was 548 VND/kWh. The final value of 599 VND/kWh was derived as the average of 590 VND/kWh and 608 VND/kWh of Ban Coc and An Diem 2 Hydropower Plant Projects respectively. An Diem 2 Hydropower Plant Project has been registered as CDM activity. 590 VND/kWh was the average tariff based on the minutes of tariff negotiation/ET-2/ between the project owner and EVN. 608 VND\kWh was calculated by the project participant as the average of the seasonal tariffs offered by EVN/ET-4/. A summary table of tariff history has been made as follows:

Date	Source	Price VND/kWh
13 April 2004	Decision No.709/QD-NLDK Ministry of Industry	533 (3.5 US cents/kWh): rainy season 563 (3.7 US cents/kWh): dry season
June 2004	FSR of Dak Pone	548 (3.6 US cents/kWh)
14 February 2005 : Investment decision date	Average value from Ban Coc (590 VND/kWh) and An Diem (608 VND/kWh) projects agreements between EVN and the Pos available to the project owner of the proposed project activity. This has been orally confirmed and the agreements could be checked by the validation team.	599

Since the value applied by the project participant is higher than the host country regulation applicable at time of decision made and than the tariff estimated in the FSR by an independent consultant, TUV NORD assessed that the applied value of 599 VND/kWh is appropriate and applicable at the time of making the investment decision.

Furthermore, the validation team also made some references to the tariffs applied by other registered CDM activities as follows:

Reg. No.	Tariff	Capacity

	VND/kWh	(MW)
2627	663	15
3484	606	8.1
2372	592	8.7
2371	595	4.4
2367	602	5.6
2368	595	5.5
2978	602	18
2891	585	3.6
2878	608	15.6
3256	599	7.5
3255	700	6.4
3034	750	14
2971	603	20
3051	750	19.5
3514	601	2.4
3457	750	11.4
3514	601	2.4
3484	606	8.1
3589	610	6.4
3505	603	8
3530	651	13
3667	680	15
Average	**634**	-
Project	**599**	**14.0**

The electricity tariff applied for this project activity is slightly lower than the average value of other registered projects. The range is between 585 VND/kWh and 750 VND/kWh.

With regard to the sensitivity analysis a tariff increase of 24.90 % (748 VND/kWh) must be achieved to reach the benchmark. In view of the total project activity, the tariff needs to increase to 27.24% (762 VND/kWh) when the benchmark is reached. The highest tariff of 750 VND/kWh is not popular among the registered projects. Therefore the PO cannot expect to receive such a tariff.

							In power generation industry in Vietnam, there are two power tariff schemes that have been in place so far. From 2001 to 2008: a fixed tariff scheme. Relevant guidelines for conducting the economic, financial and investment analysis and providing the purchasing-selling price frame for power generation projects include Decision No.709/QD-NLDK/BEN/ issued on 13 Apr 2004 and its successor Decision 2014/2007/QD-BCN/BEN/ of June 13, 2007 of Ministry of Industry, wherein the fixed tariff is applied. From December 2008 onwards, the avoided cost tariff was applied. Available guidance includes Decision No 18/2008/QD-BCT/ET-5/ issued by the Ministry of Industry and Trade dated 18 July 2008 and Decision 74/QD-DTDL3/ET-6/ issued on 24 Dec 2008. The later mentions that the grid-connected renewable energy power plants which meet the criteria are eligible for the ACT from 1st January 2009. Only since then, the tariff for hydropower projects with installed capacity of not more than 30 MW is adjusted annually by the government. In case of the project activity, the board decision was made in 14 February 2005, during this time, fixed tariff was the only available and applicable scheme. Under this scheme, the tariff once negotiated with EVN (monopoly utility company) remains fixed for long term. From the above justification and evidences seen by the validation team, it could be concluded that the applied tariff of 599 VND/kWh is appropriate and conservative at time of board decision, and can be considered as fixed over a long term.
Income tax	Varying with years	%	Decree No 164/2003/ND-CP issued on 22 December 2003 by the Government:	/NTP/	☒	☒	The income tax rate is 0 for the first 4 years, 14% for the next 7 years, and 28% for the remaining years. This is from the Government Decree No 164/2003/ND-CP issued on 22 December 2003, 'Chapter V: Article 38- Item 4. It could be confirmed that the income tax calculation is in accordance with national requirements. It should be further noted that interest payments are considered to calculate the income tax to ensure a conservative approach.

3 http://www.windenergy.org.vn/index.php?mact=Uploads,cntnt01,default,0&cntnt01category=legal%20documents&cntnt01count=5&cntnt01mode=summary&cntnt01pagenum=2&cntnt01returnid=55

Annual O & M cost	2.58	Billion VND	Decision No 709/QD-BCN issued on 13 April 2004 by Ministry of Industry	/GGI/	☒	☒	The annual O & M cost is based on Decision No.709/QD-NLDK dated April 2004 issued by the Ministry of Industry. It provides temporary guidelines for conducting the economic, financial and investment. It prescribes that the annual O & M cost is 1 % of total investment, which is a reasonable value if one refer to technical literature/RET/ as well as based on experiences by TÜV NORD for other validations. The impact on the sensitivity of financial assessment is limited. As shown by PP in the PDD and checked by TÜV NORD even if O&M is reduced by 100 % the benchmark is not achieved.
Resource tax	2	%	Circular No 153/1998/TT-BTC e	/GGI/	☒	☒	According to the Circular No 153/1998/TT-BTC issued on 26 November 1998 by Ministry of Finance, which provides a resource tax rate of 2.0% for hydropower plants the resource tax will be calculated as the net electricity outputs supplied to the national electricity grid x 750 VND x 2%. As this costing is stipulated by Vietnamese Law, TÜV NORD assessed it as applicable. The relevant law has been checked and the information was verified.
Technical lifetime	40	yr	selected	/IRR/	☒	☒	The project participant has chosen a lifetime of 40 years to assess the cash flows for the project IRR. It is derived from EB guidance on remaining lifetime. TÜV NORD accepted the approach as it leads to a comparatively higher IRR than commonly applied 20 to 30 years.
Annual Depreciation	12.90	Billion VND	calculated	/IRR/	☒	☒	The straight line depreciation has been chosen over a period of 20 years which is in accordance to local accounting principles. It should be noted that a fair value after 40 years operation is not considered as revenue, since the project is not expected as an asset after this long operational time. This is assessed as appropriate.

Table A-3.2: Assessment of Financial Parameters (EB 51 Annex 3, §§110, 111, 113/ in case financial parameters stem from FSR §112) for **Dak Pone Expansion**

☐	No financial parameters are used for additionality justification				
☒	Assessment of all financial parameters see below				
Parameter	**Value**	**Unit**	**Source of**	**Referenc**	**DOE ASSESSMENT**

	applied		Information (please indicate document and page)	e	Correctness of value applied	Appropriateness of information source	Comment
Gross electricity generation	6.2	GWh	Prefeasibility Study Report	/PSR/	☒	☒	The value is derived from the feasibility study report which was established by the "Electricity Design Centre of the Power Company No.3 (PC3). The centre has determined the output based on long term hydrological conditions from the project area. The mentioned entity is an engineering company which has the necessary expertise to determine the feasibility of hydro projects. The business license issued by Vietnamese government has been checked to confirm this./QFP/ The plant load factor is about 44.3 %. Considering decision in EB 48, Annex 11, clause 3 the total electricity generation is assessed as applicable. The FSR providing centre is a third party which has been contracted by the project owner. Furthermore, the value has been reconfirmed in the FSR from October 2004/FSR/ and finally approved by the government of Vietnam/AFSR/, /IL/. As indicated in the PDD the amount of electricity output must be increased by 50.90 % to reach the benchmark. The calculation has been checked and could be verified. Considering that the hydrological conditions are based on long term measurements it is unlikely that the output will be increased by 50.90 %. Hence, a significant improvement of the financial viability of the proposed project is unlikely.
Net electricity delivered to the grid	6.1	GWh	Prefeasibility Study Report	/PSR/	☒	☒	The net electricity delivered to the grid is calculated as: gross output (annual electricity generation) * (1- loss load.) The loss load is determined as 1%. Based on experiences of the validation team an assumed value of 1 % is appropriate for consideration of losses and internal consumption. Considering the assessment of the gross output above the net electricity generation is assessed as appropriate.
Total investment	30.8	Billion VND	Prefeasibility Study Report	/PSR/	☒	☒	The total investment is derived from the feasibility study report and confirmed by the Vietnamese government through the investment license./IL/ A cross check of capacity unit investment has been conducted with other registered hydro projects in Vietnam. A cross check of capacity unit investment has been conducted with other registered hydro projects in Vietnam by the validation team.

The unit investment costs per kW are 19,235,559 VND. Compared to other hydro projects it was observed that the investments mainly refer to a similar height as indicated in the table below./unfccc/.

Reg. No.	Unit cost (apx) VND/kW	Capacity (MW)
2627	20,333,333	15
3484	20,373,143	8.1
2372	11,400,460	8.7
2371	13,796,250	4.4
2367	18,020,179	5.6
2368	18,084,909	5.5
2978	18,173,000	18
2891	18,339,631	3.6
2878	20,060,128	15.6
3256	17,977,333	7.5
3255	18,755,313	6.4
3034	19,213,714	14
2971	19,761,100	20
3051	19,794,872	19.5
3514	18,432,917	2.4
3457	19,599,561	11.4
3514	16,441,101	2.4
3484	20,373,143	8.1
3589	15,601,176	6.4
3505	17,679,875	8
3530	18,473,846	13
3667	24,793,641	15
Average	**18,430,846**	-
Project	**19,235,559**	**1.6**

In conclusion, even though the specific cost is slightly higher compared to the average costs of above mentioned registered projects, they have been accepted, since

1. Figure has been determined by a independent third engineering entity/FSR/

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2. Figure has been approved by Vietnamese government/IL/
3. It is in the range of other registered Vietnamese hydro projects.
With regard to the sensitivity analysis the PP shows in the PDD and IRR calculation that the total investment must be decreased by 39,89% to reach the benchmark.
This is assessed as unlikely by TÜV NORD since the price indices increased during the time of implementation. Furthermore, it could be evidenced with the financial auditing report above that a decrease is unlikely.</td></tr>
<tr><td>Electricity tariff (VAT excl.)</td><td>599</td><td>VND/kWh</td><td>Minutes of Electricity Tariff Negotiations</td><td>/ET/</td><td>☒</td><td>☒</td><td>The validation team has reviewed the Decision No.709/QD-NLDK Ministry of Industry/BEN/ dated 2004-04-13, which mandated the average tariff in wet and dry seasons of 533 and 563 VND/kWh respectively. The feasibility study report/FSR/ of Dak Pone dated 2004.06 was also checked. The tariff proposed in the financial analysis submitted to the project owner was 548 VND/kWh.

The final value of 599 VND/kWh was derived as the average of 590 VND/kWh and 608 VND/kWh of Ban Coc and An Diem 2 Hydropower Plant Projects respectively. An Diem 2 Hydropower Plant Project has been registered as CDM activity. 590 VND/kWh was the average tariff based on the minutes of tariff negotiation/ET-2/ between the project owner and EVN. 608 VND\kWh was calculated by the project participant as the average of the seasonal tariffs offered by EVN/ET-4/.

A summary table of tariff history has been made as follows:

<table>
<tr><th>Date</th><th>Source</th><th>Price VND/kWh</th></tr>
<tr><td>13 April 2004</td><td>Decision No.709/QD-NLDK Ministry of Industry</td><td>533 (3.5 US cents/kWh): rainy season
563 (3.7 US cents/kWh): dry season</td></tr>
<tr><td>June 2004</td><td>FSR of Dak Pone</td><td>548 (3.6 US cents/kWh)</td></tr>
</table>
</td></tr>
</table>

14 February 2005 : Investment decision date	Average value from Ban Coc (590 VND/kWh) and An Diem (608 VND/kWh) projects agreements between EVN and the Pos which was available to the project owner. This has been orally confirmed and the agreements could be checked by the validation team.	599					

Since the value applied by the project participant is higher than the host country regulation applicable at time of decision made and than the tariff estimated in the FSR by the third party consultant, TUV NORD assessed that the applied value of 599 VND/kWh is appropriate and conservative.

Furthermore, the validation team also made some references to the tariffs applied by other registered CDM activities as follows:

Reg. No.	Tariff VND/kWh	Capacity (MW)
2627	663	15
3484	606	8.1
2372	592	8.7
2371	595	4.4
2367	602	5.6
2368	595	5.5
2978	602	18
2891	585	3.6
2878	608	15.6
3256	599	7.5
3255	700	6.4
3034	750	14

2971	603	20
3051	750	19.5
3514	601	2.4
3457	750	11.4
3514	601	2.4
3484	606	8.1
3589	610	6.4
3505	603	8
3530	651	13
3667	680	15
Average	**634**	-
Project	**599**	**14.0**

The electricity tariff applied for this project activity is slightly lower than the average value of other registered projects. The range is between 585 VND/kWh and 750 VND/kWh.

With regard to the sensitivity analysis an increase of 50.90 % must be achieved to reach the benchmark. The tariff must be increased to 904 VND/kWh to reach the benchmark. Such a tariff has not been observed by the validating DOE, neither with registered projects nor with projects under validation.

In power generation industry in Vietnam, there are two power tariff schemes that have been in place so far. From 2001 to 2008: a fixed tariff scheme. Relevant guidelines for conducting the economic, financial and investment analysis and providing the purchasing-selling price frame for power generation projects include Decision No.709/QD-NLDK/BEN/ issued on 13 Apr 2004 and its successor Decision 2014/2007/QD-BCN/BEN/ of June 13, 2007 of Ministry of Industry, wherein the fixed tariff is applied. From December 2008 onwards, the avoided cost tariff was applied. Available guidance includes Decision No 18/2008/QD-BCT/ET-5/ issued by the Ministry of Industry and Trade dated 18 July 2008 and Decision 74/QD-DTDL4/ET-

4 http://www.windenergy.org.vn/index.php?mact=Uploads,cntnt01,default,0&cntnt01category=legal%20documents&cntnt01count=5&cntnt01mode=summary&cntnt01pagenum=2&cntnt01returnid=55

							[6/] issued on 24 Dec 2008. The later mentions that the grid-connected renewable energy power plants which met the criteria are eligible for the ACT from 1st January 2009. Only since then, the tariff for hydropower projects with installed capacity of not more than 30 MW is adjusted annually by the government. In case of the project activity, the board decision was made in 14 February 2005, during this time, fixed tariff was the only available and applicable scheme. Under this scheme, the tariff once negotiated with EVN (monopoly utility company) remains fixed for long term. From the above justification and evidences seen by the validation team, it could be concluded that the applied tariff of 599 VND/kWh is appropriate and conservative at time of board decision, and can be considered as fixed over a long term.
Income tax	Varying with years	%	Decree No 164/2003/ND-CP issued on 22 December 2003 by the Government:	/NTP/	☒	☒	The income tax rate is 0 for the first 4 years, 14% for the next 7 years, and 28% for the remaining years. This is from the Government Decree No 164/2003/ND-CP issued on 22 December 2003, 'Chapter V: Article 38- Item 4. It could be confirmed that the income tax calculation is in accordance with national requirements. It should be further noted that interest payments are considered to calculate the income tax to ensure a conservative approach.
Annual O & M cost	0.3	Billion VND	Decision No 709/QD-BCN issued on 13 April 2004 by Ministry of Industry	/GGI/	☒	☒	The annual O & M cost is based on Decision No.709/QD-NLDK dated April 2004 issued by the Ministry of Industry. It provides temporary guidelines for conducting the economic, financial and investment. It prescribes that the annual O & M cost is 1 % of total investment, which is a reasonable value if one refer to technical literature[/RET/] as well as based on experiences by TÜV NORD for other validations. The impact on the sensitivity of financial assessment is limited. As shown by PP in the PDD and checked by TÜV NORD even if O&M is reduced by 100 % the benchmark is not achieved.
Resource tax	2	%	Circular No 153/1998/TT-BTC e	/GGI/	☒	☒	According to the Circular No 153/1998/TT-BTC issued on 26 November 1998 by Ministry of Finance, which provides a resource tax rate of 2.0% for hydropower plants the resource tax will be calculated as the net electricity outputs supplied to the national electricity grid x 750 VND x 2%. As this costing is stipulated by Vietnamese Law, TÜV NORD assessed it as applicable. The relevant law has been checked

							and the information was verified.
Technical lifetime	40	yr	selected	/IRR/	☒	☒	The project participant has chosen a lifetime of 40 years to assess the cash flows for the project IRR. It is derived from EB guidance on remaining lifetime. TÜV NORD accepted the approach as it leads to a comparatively higher IRR than commonly applied 20 to 30 years.
Annual Depreciation	1.54	Billion VND	calculated	/IRR/	☒	☒	The straight line depreciation has been chosen over a period of 20 years which is in accordance to local accounting principles. It should be noted that a fair value after 40 years operation is not considered as revenue, since the project is not expected as an asset after this long operational time. This is assessed as appropriate.

Conclusion: Since the IRR both projects is below the benchmark and financial parameters are assessed as appropriate, an overall assessment including the figures of both projects together is not conducted.

ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

Table A-4: Assessment of Barrier Analysis (EB 51 Annex 3, § 117)

☒	No barrier parameters are used for additionality justification
☐	Assessment of barriers see below

Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			☒	
			☒	
			☒	
			☒	
			☒	
			☒	
			☒	
			☒	

ANNEX 5: OUTCOME OF THE GSCP

Table A-5: Outcome of the Global Stakeholder Consultation Process

(§§ 41, 42 VVM Version 1)

☒	No comments were received during the global stakeholder consultation period					
☐	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:					
Comment No.:	**Comment by:**	**Inserted on:**	**Subject**	**Comment** *)	**Action taken by the validation team to take due account on the comment** *)	**Conclusion (incl. CARs CLs or FARs)**

*) In case clarifications have been requested by the validation team corresponding rows shall be added

ANNEX 6: STATEMENTS OF COMPETENCE OF TEAM MEMBERS

TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Martin Saalmann

born on 1976-02-23

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-03-31
Certification registration No. 10 04 01 – 22

Essen, 2010-04-01

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH

TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Stefan Winter

born on 1975-12-01

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Assessor

The present appointment will terminate on 2013-11-15
Certification registration No. 10 11 07 – 163

Essen, 2010-11-16

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH

TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Dipl-Ing. Rainer Winter

born on 1963-02-21

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby re-appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-07-03
Certification registration No. 04 02 154-03
Initial appointment Assessor: 2004-03-01
Senior Assessor: 2007-07-07

Essen, 2010-07-04

Deputy of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH

TÜV NORD

CERTIFICATE OF APPOINTMENT

Ms. Grace Chen

born on 1982-11-05

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Expert

For the following scopes: 1, 4, 5, 13

The present appointment will terminate on 2011-05-13
Certification registration No. 08 05 01 - 54

Essen, 2008-05-14

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH

TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Pham Van Trung

born on 1982-01-12

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Trainee

The present appointment will terminate on 2013-11-04
Certification registration No. 10 11 03 – 201

Essen, 2010-11-05

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH